

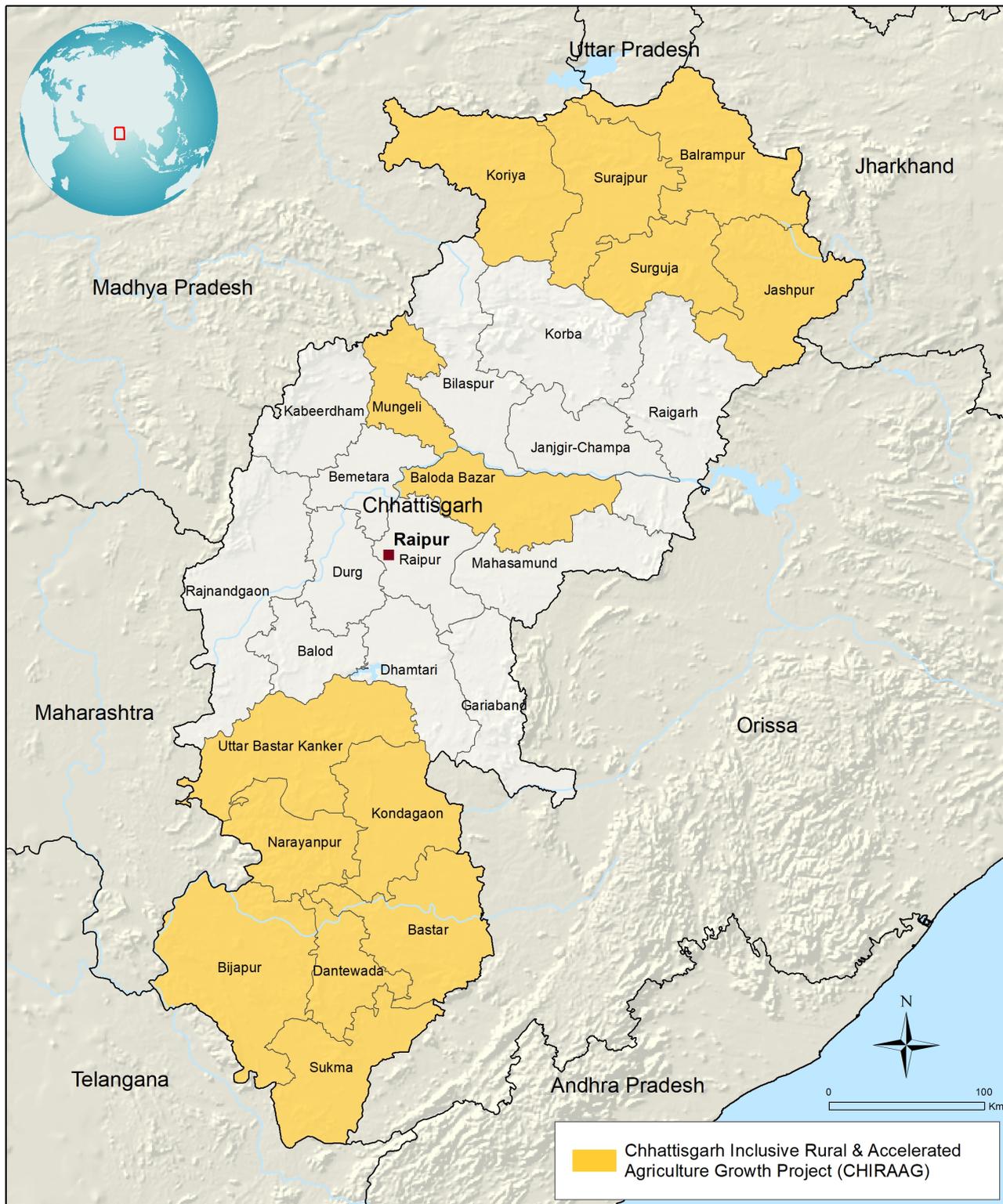
India

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG) Design Report

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Asia and the Pacific Division
Programme Management Department

Map of the Project Area



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 08-01-2021

MEMO for Cofinancing “Type C” Projects

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DATE: 26/02/2021

SUBJECT: Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)

In line with IFAD11 mainstreaming commitments, the project intends to qualify as:

Gender transformational Youth sensitive Nutrition sensitive Climate finance

Introduction

1. The Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project (CHIRAAG), is a transformative and inclusive project of the Government of Chhattisgarh (GoCG). Detailed design of the project has been undertaken by the World Bank (WB) and GoCG since 2018, and the project was submitted to the World Bank Board of Directors in December 2020^[1]. At the beginning of September 2020, the Government of India informed the World Bank that the country has reached single borrower limit, and requested the World Bank to downsize its commitment to the project from the current USD160 million to about USD100 million creating a financing gap of USD60 million. The Ministry of Finance and the World Bank requested IFAD to bridge this gap given that the project was aligned to IFAD priorities. Government of India's request to IFAD to bridge the financing gap is also a result of the request made by IFAD President to Government of India Delegation during the 43rd Governing Council Meeting in Rome in Feb 2020 to consider co-financing with WB and Asian Development Bank (ADB) in order to scale up the impact of its operations in the country.
2. In November 2020, IFAD senior management endorsed the entry into the pipeline of the project and its submission to the IFAD Executive Board in April 2021. In view of the GoCG request for alignment of procedures and design with the World Bank approved project, the OSC recommended the project to be considered as a co-financing arrangement with the World Bank as the Cooperating Institution (CI) administering the IFAD loan instead of the initially proposed parallel financing. This would allow IFAD to adopt the World Bank Project Appraisal Document (PAD), and World Bank procedures for Financial Management, procurement and environmental and social safeguards, thereby reducing the burden on the state government to follow two different procedures and guidelines of two financiers. In a subsequent meeting between World Bank, GoCG and IFAD on Dec 1, 2020 chaired by the Department of Economic Affairs (DEA), Government of India, this arrangement was endorsed by DEA and GoCG and it was agreed that once a formal communication was sent by DEA to World Bank, the modalities would be formalised. During the meeting, the World Bank expressed its openness to consider cofinancing CHIRAAG.
3. On 22nd January 2021 the World Bank in its official communication to DEA confirmed the co-financing arrangement. The WB will be restructuring the CHIRAAG project, and this will entail preparation of a Restructuring Paper. As completion of the restructuring is predicated on the approval of IFAD's financing, the World Bank will share the final approved Restructuring Paper following IFAD's Board approval of the project. A sample Restructuring Paper has been shared for reference during DRM and the World Bank is working on sharing a draft Restructuring Paper by Feb 20, 2021 in time for the SEC due date (22nd Feb 2021). Currently, the PAD uploaded in ORMS only presents the activities in the geographic area covered by the WB financing.
4. The State of Chhattisgarh was formed in 2000^[2]. Home to 26 million people, Chhattisgarh has the highest poverty rate in India (40%), with poverty reduction lagging behind all other States despite being one of the richest Indian states in terms of natural and mineral resources. The State also has the highest proportion of Scheduled Tribe Population (31.6%) in the country amongst large States. About 80% of the State's population is dependent on the agriculture sector which contributes only 17% to State Gross State Domestic Product (GSDP). Agriculture is rainfed and subsistence based on one main crop, paddy. Finally, fourteen of the 27 districts in the State are affected by Left-Wing Extremism (LWE) and 8 of them are amongst the 30 most affected districts in India. The CHIRAAG project

addresses the low productivity and incomes from the crop and livestock sectors in 12 tribal dominated districts and 2 scheduled caste dominated districts of the State. With the outbreak of the COVID pandemic and its impact in the state, the GoCG and World Bank included a component for COVID 19 economic recovery.

5. The Project Development Objective (PDO) is to improve income opportunities and the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.
6. Components: CHIRAAG is organized into five interlinked components: Component 1: Community Empowerment and Institutional Strengthening; Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems; Component 3: Value Addition and Market Access; Component 4: COVID -19 Economic Recovery Response; Component 5: Project Management, Monitoring and Knowledge.
7. The Project Implementation Agency will be the Department of Agriculture Development and Farmers Welfare and Biotechnology (DoAB) of the GoCG. Under the aegis of this Department, the Directorates of Agriculture, Horticulture, Fisheries and Veterinary Services will provide technical support to the project at various implementation levels.
8. Coverage: The Project will be implemented in 25 blocks in 14 districts in the poorer and more disadvantaged areas of the State. In view of the respective financing of World Bank and IFAD, it was agreed with the State Government that IFAD will cover 11 blocks in the 5 Northern Districts and central district of Balodabazar, whereas the World Bank will cover 14 blocks in central district of Mungeli and 7 Southern districts.

Rationale for IFAD's Engagement in Co-financing and IFAD's Value Added

9. CHIRAAG presents an opportunity for IFAD to bring its tribal development experience to bear on the implementation of the project. IFAD has successfully financed integrated tribal development projects in the Eastern and North East regions of India which were subsequently scaled up by the State Government (as in the case of the Odisha Tribal Empowerment and Livelihoods Programme [OTELP] by the Government of Odisha) and Government of India (as is the case with North Eastern Region Community Resource Management Project for Upland Areas III [NERCORMP III]). The World Bank drew on the lessons learned from IFAD implementation of tribal development projects in the design of CHIRAAG as is evidenced from its participatory and decentralized implementation approach, focus on nutrition especially nutrition sensitive agriculture and promotion of integrated farming. In terms of IFAD additionality, the GoCG requested that IFAD includes a technical assistance cell on food systems and nutrition, which is duly incorporated under IFAD financing. This cell will work alongside the value chain and marketing cell that is already proposed by the World Bank under Component 3. Finally, this project will enable IFAD to report international co-financing in the country for the first time in over four decades.
10. Recognising that the World Bank's design fully meets IFAD objectives and focus areas, it is not proposed to make any changes to the proposed interventions in the 11 blocks to be supported by IFAD. However, at the request of GoCG, IFAD will design and fund a cell in the Project Management Unit (PMU) to provide technical support on food systems and nutrition across all 25 project blocks as a major cross-cutting theme of the project.
11. The CHIRAAG monitoring and evaluation (M&E) framework will be strengthened by some additional output and outcome indicators selected from IFAD core indicators. Annual Outcome Surveys are also planned.
12. It is proposed that IFAD shares the costs of the PMU with the World Bank and GoCG. IFAD can finance additional human resources in the PMU to strengthen project management including M&E and knowledge management.
13. **IFAD's leadership and visibility**
14. Recognising that the World Bank's design fully meets IFAD Corporate priorities and India COSOP objective, it is not proposed to make any changes to the design in the 11 blocks to be supported by IFAD. However, IFAD's visibility and leadership will be maintained in three broad ways. Firstly, IFAD will design and fund a cell in the PMU to provide technical support on food systems and nutrition across all 25 project blocks as a major cross-cutting theme of the project. This will allow IFAD to bring to the project its broad ranging expertise on nutrition and food systems, including in tribal areas, within India and outside. Secondly, even though this is a single project design to be implemented in two separate geographies by WB and IFAD financing, during implementation there will be opportunities (via the AWPB and annual review process) to fine tune activities according to the specific needs of individual zones, districts and blocks. Thirdly, cross fertilisation between IFAD and WB areas will occur through the shared SPMU resources and expertise brought by IFAD during Supervision and Implementation Support Missions. It must be noted that the project design already includes a number of lessons from IFAD supported projects, which indicates the WB's recognition of IFAD's expertise in these areas.

Lessons Learned

15. The main lesson derived from co-financing projects with bilateral and multilateral donors is that continuous communication and coordination are key to ensure a cohesive approach among donors, and responsiveness to implementation challenges and capacity building requirements of the State Government. For this project, with World Bank as the CI, IFAD will lend its expertise during supervision and implementation support which would be led by the World Bank.
16. Another lesson from the Convergence of Agricultural Interventions in Maharashtra's Distressed Districts (CAIM) Project in Maharashtra which was co-financed with the Tata Trusts is that projects where co-financiers support different components of the same design in the same geographic areas can be chaotic and lead to delays. Geographically segregating the area with defined responsibilities is more effective and efficient, allowing each financier to bring their technical expertise to benefit the project as a whole.
17. The design of the project reflects lessons from inclusive livelihood, tribal development initiatives, climate smart agriculture and successful nutrition-sensitive agriculture interventions in India and globally. Key lessons that guided the project design include^[3]:
 - Participatory processes, community-based organizations, and non-profit led mobilization are key to tribal empowerment and sustainability of project interventions (Odisha Tribal Empowerment and Livelihoods Program (OTELP), supported by DFID and IFAD). OTELP adopted a flexible, non-prescriptive, process-oriented approach to enable stakeholders determine the scope of program activities, their timing, pace and sequencing. The community institutions were promoted for integrated production systems around multiple livelihoods (agriculture, horticulture, livestock, agroforestry, fishery) for systematic utilization of natural resources (water, soil, biodiversity) and initiatives to increase agricultural production as well as for supporting broader policy initiatives that fall under the ambit of tribal panchayats (for example, developing economic and social infrastructure in tribal communities).
 - Attention to diversification of the productive base of the rural poor, considering the heterogeneities of the different groups and their specific requirements, along with sharper targeting can contribute to better results. (IFAD, Jharkhand-Chhattisgarh Tribal Development Project^[4]). Income diversification which harnesses the underlying natural resource base offers great scope to increase incomes of participating households. Diversification aimed at enhancing the basket of livelihood sources for a participating household complemented by provision of better infrastructure and capacity development support can help beneficiary households broaden sources of incomes. Diversified production systems can also build resilience against climate shocks in economically remunerative sub-sectors (agriculture, horticulture livestock, fisheries, sericulture, and agroforestry).
 - Nutrition-sensitive agriculture programs combined with nutrition education have the potential to improve nutrition outcomes. Global experience of nutrition-sensitive agriculture from a recent analyses from 19 focus countries in Africa, Asia, Latin America and the Caribbean brings out important lessons that include: developing context-specific activities; targeting SBCC activities along all agriculture-nutrition pathways; empower women; focus on opportunities for nutrition throughout the value chains; strengthen coordination and collaboration; and invest strategically in partnerships and capacity building to ensure sustainability. These lessons have been taken into consideration in designing the project, to maximize the potential of nutrition-agriculture linkages for impact.
 - Livelihood programs while having strong social inclusion aspects have often encountered the issue of weak impacts on agriculture competitiveness because of inadequate emphasis on spatial dynamics at project design stages, low investment per household, and lack of interventions that address binding constraints to rural competitiveness, such as poor infrastructure. A calibrated approach has been adopted in the project design ensuring equal focus on technical and value chain interventions to enhance agriculture competitiveness and resiliency, as well as on community-based approaches to ensure inclusion of poor households. Further, the project has emphasized use of spatial analytics for locating project interventions in Blocks (geographical clusters) that have the strongest potential for income impacts as enabling conditions already exist or can be achieved through planned government investments (such as access to irrigation and profitable markets).
 - Social inclusion, community participation and transparency are key strategies, especially in left wing extremism (LWE) areas. Lessons learned from a range of rural livelihood initiatives in Chhattisgarh (and Odisha) demonstrate that to avoid exacerbating the LWE situation, it is important to ensure that projects: (a) include the poor, women and tribal community members in all aspects of implementation; (b) are relatively small in scale/have low visibility; (c) utilize local community members in project implementation; (d) are highly transparent with respect to targeting and finances; and (e) train and orient project staff on how to effectively operate in areas affected by LWE.

Contribution to SDGs and alignment with country sector and IFAD objectives

18. CHIRAAG will directly contribute to five of the 17 Sustainable Development Goals (SDGs):
19. SDG 1: No poverty; [SDG 2: Zero Hunger](#); [SDG 5: Gender Equality](#); [SDG 10: Reduced Inequality](#); and SDG [13: Climate Action](#). The project will achieve this by working in the poorest parts of the poorest State in India, aiming to

improve livelihoods and living standards of marginalised tribal communities, improve food security and empower women.

20. CHIRRAAG is well aligned with IFAD's country strategy (COSOP) for India which is focused on enabling smallholder food and agricultural production systems to become remunerative, sustainable and resilient. Implementation of the strategy involves: (i) supporting better price realization, agro-based enterprises and the promotion of value chains with the multiplier effect of reducing migration and making agriculture attractive for youth; (ii) promoting tried and tested techniques such as low external input sustainable agriculture and precision farming practices that contribute towards sustainable agriculture intensification; and (iii) diversification of crops and livelihoods, promotion of integrated farming and improving the outreach of social security nets to build resilience to climate change and market variability.
21. At the global level, IFAD has set three strategic objectives: (i) increasing the productive capacity of poor rural people; (ii) increasing their benefits from market participation; and (iii) strengthening the environmental sustainability and climate resilience of their economic activities. CHIRAAG is well aligned with these strategic objectives. The project is fully aligned with IFAD policies for indigenous people, gender equality and women's empowerment, and environment and natural resource management consistent with IFAD action plans for mainstreaming gender, rural youth, nutrition and environment and climate change.
22. CHIRAAG is aligned to the state's vision of promoting inclusive, resource-efficient rural growth with strengthened last-mile service delivery. The state's vision is reflected in its three flagship schemes/policies of (i) *Narwa, Garuwa, Ghuruwa, Baadi* (NGGB) – rural transformation leveraging traditional knowledge on water conservation, livestock management, organic manure and backyard nutrition for resource-efficient growth; (ii) *GoDhan Nyay Yojana* – enhancing livestock farmers' income, promoting use of organic manure, improving soil fertility, availability of safe and nutritive food; and (iii) *Mukhyamantri Suposhan Abhiyaan*- provisioning of fresh, nutritious food to malnourished children and anaemic women through panchayats and self-help groups (SHGs). This allows IFAD to support the implementation of key policies of the government while also bringing its experience to influence the quality of the implementation.

Definition of Target Groups and Targeting Strategy

23. The full CHIRAAG project will be implemented across 25 blocks in 14 districts. Twenty-three of these blocks are remote from the capital city, being in the northern and southern regions of the State and are tribal dominated. Two blocks from two districts of the central plain areas are with high scheduled caste population. As well as having populations that are predominately from disadvantaged scheduled tribes, households in the project blocks are relatively poorer (notwithstanding Chhattisgarh being the poorest State in India) and there is little irrigation in these areas – leaving farmers more vulnerable to climate change. Selection of blocks also took account of lack of access to surfaced roads and low levels of literacy.
24. The project will target 400,000 households from about 1,500 villages. In each of the 14 districts, approximately 2 blocks will be targeted^[5]. Within the selected 25 blocks, villages will be selected based on proximity to the Gauthans^[6] identified^[7], with 2 villages selected near each village housing a Gauthan taking into consideration dominance of tribal population and remoteness. Within selected villages, all households will avail themselves of project benefits.
25. The primary target group will include households from Scheduled Tribes (ST), Particularly Vulnerable Tribal Groups (PVTG) and Scheduled Castes (SC) who are either smallholder farmers relying on subsistence rainfed agriculture or forest products for their livelihoods. Within these groups, women and youth will be given special attention. The Community-Based Organizations directly eligible to receive project benefits are Gauthan committees, Livelihood Groups and Farmer Producer Organisations (FPOs). The project will proactively adopt affirmative measures for the equal participation of poor smallholders from the ST and SC households in these organizations. There will be quotas for women in producer groups; and women's SHG will be an entry point for nutrition initiatives. Accordingly, all people-centered data for the project will be disaggregated by gender, youth, ST and SC (as indicated in the logframe).
26. In addition, CHIRAAG will have specific activities targeted at poor landless households. This group has been particularly hard hit by the economic downturn stemming from the COVID-19 pandemic, losing their jobs in urban areas and returning to villages to find new sources of livelihoods and income. Youth are another group hard hit by the decline in job opportunities and the project aims to support youth through the development of integrated farming and value chains as well as other activities. The youth will also be key beneficiaries of the proposed centres for reskilling and entrepreneurship promotion.

IFAD's Mainstreaming Areas

27. CHIRAAG will directly contribute to two of IFAD's mainstreaming commitments: Nutrition and Climate. The Project is designed to be nutrition sensitive and climate focused. Rainfed agriculture in eastern India is particularly vulnerable to the impacts of climate change in the form of erratic rainfall and changing weather patterns. The Project will address the impacts through diversification of farm enterprises and promotion of climate resilient production systems consistent with the Chhattisgarh State Action Plan for Climate Change. Food crop systems and nutrition are a major focus for the project and an area where IFAD will make a significant contribution as the technical lead on food systems and nutrition. The project will ensure that women are direct recipients of agricultural support, and have specific subsectors that are of interest to youth. On gender logframe indicators and targets will be reviewed to make them consistent with the outreach of various project activities. Gender strategy will be developed in the Project Implementation Plan (PIP)/ Project Implementation Plan (PIM) and further finetuned during implementation. Key entry point to women empowerment would be the SHGs and their federations, a well proven strategy in all tribal development projects supported by IFAD. Both the Environment and Social Management Framework (ESMF) and the Tribal Development Framework describe the challenges faced by youth in the project area and proposes a range of activities to be targeted to the youth including promotion of backyard farming (Badi), sustainable agro-value chain creation, entrepreneurship development and employment generation. The project will also build on the existing network of community institutions promoted by Chhattisgarh State Rural Livelihoods Mission (SRLM) to target youth in the project areas. The Tribal Development Framework includes detailed procedures for screening tribal communities in the project area to determine if tribal families or communities are present or have collective attachment in the area of influence of the proposed Project activities. Based on the social assessment and free, prior, and informed consultation, the project will propose specific measures to ensure that affected tribal people will, meaningfully and in a culturally appropriate manner, participate in project activities and benefit from the project.

Results Framework

28. The CHIRAAG results framework (which has physical targets) and monitoring framework (which shows indicators) are attached to this note. The CHIRAAG results framework is well aligned with the IFAD core indicators in the following 4 areas: nutrition (CI 1.1.8 and 1.2.8), environmental sustainability and climate change (CI 3.1.1. and 3.2.2), rural producers' organizations (2.1.3 and 2.2.5), and policy (policy 1 and policy 3). The outreach indicators used by IFAD are added to the results framework.

Project Cost and Financing, including IFAD contribution

29. The CHIRAAG project will be co-financed by the World Bank and IFAD, with a substantial contribution from the State Government. The overall cost of the project, covering 25 blocks in 14 districts is estimated to be USD 239.58 million. Of this, USD 100 million would be funded by the World Bank, USD 67 million from IFAD and USD 72.38 million from the State Government. CHIRAAG will be implemented as one single project, with the two Financiers covering two geographic areas- the World Bank financing would cover eight districts and 14 blocks primarily in Southern part of the state and IFAD financing would cover six districts and 11 blocks primarily in Northern part of the state. The World Bank would fund a technical cell supporting value chains and marketing while IFAD would fund a technical cell for food systems and nutrition. Both these cells would provide technical support across the entire project area. Both IFAD and the World Bank would fund the State PMU. (Please see Annexe to this memo for the summary cost tables).
30. The fund flow mechanism for this project would be the same for any other IFAD financed project in the country whereby Funds would flow from IFAD to a Designated Account and from there to the State Government. However, the only difference will be that IFAD will be receiving the Payments Instructions from the World Bank.
31. As an exception to section 4.07(a)(ii) of the IFAD General conditions, IFAD is seeking Executive Board approval for retroactive financing of up to 5% of the IFAD Loan (USD 3.35 million) for eligible expenditures to finance start-up activities (including baseline and recruitment of Technical Agencies), incurred between 1 December 2020 and entry into force of the IFAD Loan, to ensure minimum phase lag with the WB approval. Retroactive financing needs to be pre-financed by the Government and reimbursed from the Financing after this Agreement has entered into force and the conditions precedent to withdrawal have been met.
32. **External audit:** Through the State Principal Accountant General, the Comptroller and Auditor General of India will conduct an external audit of the consolidated Financial Statements (FS) of the CHIRAAG at all project levels. The unaudited consolidated FS will be submitted to the Comptroller and Auditor General by June 30 each year to allow adequate time for the audit, to be conducted in accordance with terms of reference agreed by the Comptroller and

Auditor General for audit of Bank financed projects.

33. As an exception to section 9.03 (b) of the IFAD General conditions, IFAD is seeking Executive Board approval for the submission of the annual audited financial statements 9 months after each Fiscal Year-end in order to align the WB timeframe for audit report submission.
34. In order to adopt an identical policy on taxes as WB being the CI and improve the efficiency of funds flow and better support to the programme implementation, IFAD will finance 100% of the expenditures inclusive of taxes. The total taxes for CHIRAAG are estimated at USD 23.7 million using prevailing tax rates in India. This amount represents 10% of the total project costs approximately. The tax portion that would be financed by IFAD is estimated at USD 6.64 million. The Government contribution of USD 72.38 million represents 11 times the tax amount financed by IFAD.
35. FM manual is part of the Project Implementation Plan. The client (GoCG) will further prepare Community Operation Manual and COVID Economic Response Manual (duly mentioned as covenants in the PAD), wherein specific FM sections will be included. The World Bank does not prepare any separate FM manual.
36. **Economic and Financial Analysis**
37. The EFA as provided in the WB PAD shows that the project is financially and economically viable and robust to significant variations in costs, benefits and implementation delays. Triangulation with the EFAs of JTELP and OPELIP, suggests that these results are robust and consistent with similar projects supported by IFAD in the tribal dominated areas of Eastern India. These are, therefore, valid and applicable for the districts covered by IFAD financing. No new analysis integrating the IFAD investment is envisaged.
38. **Policy Engagement**
39. The project will support the implementation of the 3 key policies of the GoCG (NGGB, Nyay and Suposhan Abhiyan) and will help develop the knowledge and evidence required for strengthening the implementation of these policies in partnership with local research centres as well as in facilitating knowledge transfer from the project/state to other IFAD supported projects in India and outside. The project envisages regular policy consultations with key state decision-makers to share learning from project implementation and inform policy makers.
40. The project also proposes to develop a Policy on promoting and financing FPOs in the state. IFAD will contribute to this process by leveraging its experience of working with tribal communities especially on their mobilisation into groups and participation in agriculture markets as well as lessons from IFAD's Farmers Organisation grant programmes such as Asia Pacific Farmers Programme (APFP) and Farmers' Organisation for Africa, Caribbean and Pacific (FO4ACP).
41. IFAD will build on its ongoing relationships with the Ministry of Agriculture and Farmers Welfare as well as Ministry of Tribal Affairs in Government of India to share lessons from the project for simultaneous replication, where possible.
42. **Knowledge Management**
43. The project will promote knowledge exchange between stakeholders as well as accessing up to date knowledge from local, national, and international organizations. The project will support the creation of an ecosystem to capture, preserve and scale relevant traditional knowledge and practices of tribal communities. The project will strengthen local institutions and facilitate the process of exchange within and between communities, states, south-south countries and between developing and industrial countries. This will include operational activities, such as identification and validation of Tribal Traditional Knowledge (TTK), integration or refinement with scientific knowledge, documentation and packaging of tacit and explicit knowledge, maintaining repositories and dissemination of knowledge. The project will also foster partnership with national and international organizations i.e. Central Food Technology and Research Institute, Mysore; National Institute of Nutrition, Hyderabad; Biodiversity International; International Rice Research Institute (IRRI) etc. to access the latest knowledge in the related thematic areas of the project. The project will also invest in arranging learning cum exposure visits for officials of relevant departments and policymakers to best practice sites within the country and outside. These knowledge partnerships and exposure visits aim to build the capacity of State functionaries.
44. **Involvement of the Federal Government and adoption of a programmatic approach**
45. The Central/ Federal Government engagement with projects in India is in three ways: (i) at Concept Note the Concerned Federal Ministry reviews the project Concept Note and provides feedback and technical approval of the design including actions to be taken for stronger alignment with Federal government programmes (ii) During Reviews: both during TPRM and Supervision Missions, concerned Line Ministries are invited for participation and/ or debriefing and (iii) through documentation and sharing of project initiatives with the Line Ministries. Additionally project staff participate in relevant meetings of the concerned Federal Ministries and share their experiences. All of this will be undertaken for CHIRAAG as well. The IFAD team will work closely with the line Ministries and Dept of Economic Affairs to scale up the project in other states of the country.

46. Exit strategy

47. The exit strategy of the project is built on a strong sustainability plan that envisages (i) human capital development; (ii) Institutional sustainability which involves strengthening capacities of the various line departments (agriculture, horticulture, livestock, fishery) and improving their delivery systems as well as strong local institutions; (iii) Financial sustainability by empowering the targeted community and building human capital to acquire new knowledge and skills and access to profitable markets; and (iv) Social and environmental sustainability through overall sustainable and efficient utilization of natural resources for optimal productive use and building community resilience against climate shocks. Establishing robust FPOs which can facilitate market linkages is also a key pillar in the project exit strategy.

Alignment of the Design Process

48. The World Bank project was approved by its Board in December 2020. For best coordination and to ensure minimum phase lag between the two geographies IFAD documents will be submitted to its Executive Board for approval in April 2021 and a provision for retroactive Financing will be made.

Supervision Arrangements

49. The World Bank will act as the CI for the IFAD loan and will be responsible for the supervision and loan administration of the IFAD financing. IFAD will participate in World Bank supervision and implementation support based on its areas of core expertise. Supervision missions will be undertaken jointly by both institutions. The WB team in India is well aligned with IFAD Country team and together they will be in a stronger position to provide considerable implementation support when this is needed.

Estimated Cost Sharing by IFAD for Design and Implementation

50. IFAD has joined the design process of CHIRAAG at the very end and hence there is no cost sharing of design. A fee is being worked out with the World Bank for carrying out the Supervision and Implementation Support Missions. A system will also be put in place at the Country office level for periodic review of the project by the two Financiers.

Risk

51. The overall project risk is assessed as **Substantial** with high concern related to institutional capacities and processes. Detailed plans for mitigation have been drawn up by the World Bank in the PAD. IFAD involvement as co-financer will further contribute in strengthening the mitigation efforts especially in areas of institutional capacity and ability to operate in conflict affected areas as well as the technical aspects related to nutrition sensitive agriculture and integrated tribal development.
52. *Macroeconomic risk is assessed as Moderate.* India's GDP growth has slowed in the past three years, and the COVID-19 outbreak is expected to have a significant impact. On the fiscal side, the deficit is expected to widen significantly in FY20/21, owing to weak activity and revenues, as well as higher spending needs. States also face significant fiscal stress owing to shortfalls in revenue and compensation associated with the Goods and Services Tax, as well as due to limits on borrowing. This being said, residual macroeconomic risks – and specifically risks of insufficient counterpart funding by the state of Chhattisgarh – are low and unlikely to compromise the achievement of the project's development outcomes. This is because: (a) the counterpart funding requirement (\$42.6 million) is modest as a share of state expenditures; and (b) the project directly supports growth and job generation in a critical sector.
53. *Sector strategy and policy-related risks are rated Moderate.* The main project risk from ongoing policy initiatives relates to potential changes to data privacy and protection. Activities directly or indirectly supported by this project collect personal data, i.e. name, age, ID number, gender, cell phone number, which could be used to identify an individual. Statistical data collection is governed by the *Data Collection Act of 2008*, GoI which contains provisions to guarantee respondents confidentiality. A Personal Data Protection Bill is currently under preparation. [\[8\]](#) The implications of the Bill are not clear yet, and should it be approved, the Bank and DoAB will conduct a technical

analysis of the potential impact of the effectiveness of the Bill on project design and discuss any modifications that may be needed.

54. *Technical design risks are rated Substantial.*The key risks are: (a) lack of experience in promoting nutrition-supportive agriculture, diversified and resilient farming and value chain development through decentralized mechanisms of bottom-up planning, working through community institutions, particularly in the remote, tribal-dominated areas in southern Chhattisgarh that include LWE-affected areas. Managing CHIRAAG efficiently and successfully will require strong institutional ownership and leadership from the state government, chiefly DoAB. Key technical design measures to mitigate institutional capacity risks are engagement of suitably experienced human resources from within and outside government, technical and operational capacity development for key line departments, TSA implementation support, and regular capacity building programs for state, district and block level teams. Improving service delivery of agriculture departments through the leveraging of ICT, results monitoring systems, online MIS with spatial/geographic information system mapping, beneficiary tracking portal, etc. will also be undertaken. Further, appointment of a senior bureaucrat as Project Director and an experienced Chief Operating Officer, will be key project success factors. For value chain development, as private sector engagement may be low and not immediate in remote areas, a technical support agency will be hired to support a state level value chain development cell.
55. *Institutional capacity for implementation and sustainability-related risks are rated Substantial.*GoCG's overall commitment to CHIRAAG continues to remain high as evidenced by state level Project Finance and Implementation Committee clearance. The renewed focus on agriculture through the recently launched *Nyay Yojana* and NGGB policy, is reflective of the overall priorities of the state government's agenda for inclusive rural growth, poverty reduction and rural and agricultural transformation. However, the risk to institutional capacity for implementation and sustainability is substantial, due to lack of DoAB prior experience in the implementation of a multilateral institution-funded project; and no proven institutional capacity to manage and coordinate multiple implementation agencies and project units. As indicated in the remedial measures for technical design, capacity will be built at state, district and block levels, and these teams will work with a range of experienced partners for delivery of time bound outputs; and manage delivery of project outputs.
56. *Fiduciary risks are assessed as Substantial.*The state's PFMS^[9] will be used to the extent feasible. This being the State's first Bank-financed project in nearly a decade, many government departments and agencies are not familiar with Bank procurement norms and principles, framework and guidelines. The complexities of dispersed fund flows and implementation arrangements across multiple levels pose significant fiduciary risk of diluted accountability systems, which may result in less than reasonable assurance that Bank financing will be used for the intended purpose with economy and efficiency. Detailed financial and procurement assessments, design of sustainable fiduciary arrangements and training/handholding during the early stages of project implementation will mitigate the risk.
57. *Environment risk is assessed as Moderate.*Project activities are expected to have minimal and no adverse or irreversible environmental impacts and can be mitigated and managed through the measures outlined in the Environmental and Social Management Framework (ESMF). The GoCG's ESMF and Environmental and Social Commitment Plan (ESCP) are in alignment with the Bank's Environment and Social Framework which outlines measures for mitigating minimal environmental risk and impact, institutional strengthening and capacity building, and monitoring and reporting mechanisms for the successful environmental management of project interventions.
58. *Socio-cultural risk is rated Moderate.*Project interventions are largely focused around tribal-dominated areas in southern Chhattisgarh that include LWE-affected areas. Planned project interventions are expected to benefit the local Indigenous population and not likely to have any negative impact. However, to prevent exclusion, an Indigenous Peoples Framework has been prepared in line with the World Bank's Environmental and Social Standard 7 on Indigenous Peoples. Participatory tools will be used to implement various interventions, and consultations with different tribal groups and their leaders will seek inputs during the implementation process. The Stakeholder Engagement Plan, details the consultation plan with different stakeholders throughout the life of the project.
59. *Stakeholder risk is rated Substantial.* Private sector engagement may be low and not immediate, given that the project will be implemented in remote areas, including LWE-affected areas. The project design incorporates several elements that respond to the socioeconomic and political economy context of tribal and LWE areas. Apart from these elements, it will leverage the longstanding presence, outreach and local credibility of NGOs and civil society organizations among communities, and other stakeholders as an important risk mitigation strategy. An LWE sensitization program will be delivered to all staff, partners and communities.

Footnotes

[1] The project has been approved by the WB Board and is expected to be signed soon.

[2] World Bank PAD

[3] Section F Lessons Learnt of World Bank PAD. Pages 15-16

[4] Impact Assessment Report, Jharkhand-Chhattisgarh Tribal Development Program, Independent Evaluation Office, IFAD.

[5] IFAD will finance project implementation in the northern region plus one district in the central plains – a total of 11 blocks in six districts targeting about 145,000 households in 690 villages.

[6] *Gauthans* are part of GoCG's NGGB policy and are meant to be cattle daycare centers. Under CHIRAAG, these *gauthans* will be developed into community service centers.

[7] State Government has so far identified 500 *Gauthans*. The remaining *Gauthans* and the targeted 1,500 villages are yet to be identified.

[8] <https://www.meity.gov.in/data-protection-framework>

[9] In 2004, GoCG launched the e-Kosh system to automate treasury activities, budget allocation, bill preparation, submission and centralized processing. Other modules including receipts, payroll, pension and e-payments have been added overtime. A fully online e-Kosh "Cyber Treasury" was launched on April 1, 2017. The system facilitates e-budget allocation and distribution, e-bill preparation and submission by all 5,157 Drawing and Disbursing Officers across 28 treasuries and 40 sub-treasuries, and centralized bill processing and accounting.

India

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG) Design Report

Annex 1: CI PDR

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department



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Report No: PAD3549

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US\$100 MILLION

TO

INDIA

FOR A

CHHATTISGARH INCLUSIVE RURAL AND ACCELERATED AGRICULTURE GROWTH
PROJECT

NOVEMBER 20, 2020

Agriculture And Food Global Practice
South Asia Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective October 31, 2020)

Currency Unit = Indian Rupee (INR)

INR 74.52 = US\$1

FISCAL YEAR
April 1 - March 31

Regional Vice President: Hartwig Schafer

Country Director: Junaid Kamal Ahmad

Regional Director: John A. Roome

Practice Manager: Kathryn Hollifield

Task Team Leader(s): Raj Ganguly, Gayatri Acharya, Varun Singh



ABBREVIATIONS AND ACRONYMS

<i>Beej Nigam</i>	Chhattisgarh State Seed and Agriculture Development Corporation Limited
BPIU	Block Program Implementation Units
CHIRAAG	Chhattisgarh Inclusive, Rural and Accelerated Agriculture Growth Project
COVID-19	Coronavirus Disease 2019
CRC	CHIRAAG Resource Committee
CSA	Climate Smart Agriculture
DoAB	Department of Agriculture Development and Farmer Welfare and Biotechnology
DPMU	District Project Management Unit
EIRR	Economic Internal Rate of Return
ESCP	Environmental and Social Commitment Plan
ESMF	Environmental and Social Management Framework
FM	Financial Management
FPO	Farmer Producer Organizations
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoI	Government of India
GoCG	Government of Chhattisgarh
<i>GP</i>	<i>Gram Panchayat</i>
ICT	Information and Communications Technology
IEC	Information, Education and Communications
IFAD	International Fund for Agriculture Development
IFS	Integrated Farming System
IGKV	Indira Gandhi Krishi Vishwavidyalaya
INRM	Integrated Natural Resource Management
KVK	Krishi Vigyan Kendra
LG	Livelihood Group
LWE	Left-Wing Extremism
MIS	Management Information System
MSME	Micro, Small and Medium Enterprises
NGGB	Narwa, Garuwa, Ghuruwa, Baadi
PDO	Project Development Objective
PPSD	Project Procurement Strategy for Development
SBCC	Social and Behavior Change Communication
SC	Scheduled Caste
SHG	Self-Help Group
SPMU	State Project Management Unit
STEP	Systematic Tracking of Exchanges in Procurement
ST	Scheduled Tribe
TSA	Technical Support Agency
VCDC	Value Chain Development Cell
VDP	Village Development Plan
WASH	Water, Sanitation and Hygiene
WBG	World Bank Group

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
India	Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P170645	Investment Project Financing	Moderate

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
15-Dec-2020	31-Jul-2026

Bank/IFC Collaboration

No

Proposed Development Objective(s)

The PDO of the proposed project is to improve income opportunities and the availability of nutritious foods in targeted households of Chhattisgarh's tribal-dominated areas.

Components

Component Name	Cost (US\$, millions)
1. Community Empowerment and Institutional Strengthening	14.90



2. Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems	48.50
3. Value Addition and Market Access	10.30
4. COVID-19 Economic Recovery Response	15.10
5. Project Management, Monitoring and Knowledge	11.20
6. Contingency Emergency Response Component	0.00

Organizations

Borrower:	India, Ministry of Finance
Implementing Agency:	Chhattisgarh, Department of Agriculture Development and Farmer Welfare and Biotechnology

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	142.60
Total Financing	142.60
of which IBRD/IDA	100.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	100.00
--	--------

Non-World Bank Group Financing

Counterpart Funding	42.60
Borrower/Recipient	42.60

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2020	2021	2022	2023	2024	2025	2026	2027
Annual	0.00	3.00	18.00	20.00	22.00	20.50	15.00	1.50
Cumulative	0.00	3.00	21.00	41.00	63.00	83.50	98.50	100.00



INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture and Food

Contributing Practice Areas

Health, Nutrition & Population, Social Sustainability & Inclusion

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary	● Substantial
7. Environment and Social	● Moderate
8. Stakeholders	● Substantial
9. Other	
10. Overall	● Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No



Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank’s due diligence assessment of the Project’s potential environmental and social risks and impacts, please refer to the Project’s Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

The Project Implementing Entity shall establish within three (3) months from the Effective Date and maintain throughout the period of project implementation, a Project Advisory Committee, chaired by the chief secretary of Chhattisgarh; which committee shall have composition, functions and responsibilities acceptable to the Bank, including providing overall oversight and policy guidance for project implementation;

Sections and Description

The Project Implementing Entity shall establish within three (3) months from the Effective Date and maintain throughout the period of project implementation, a Project Steering Committee, chaired by the Agriculture Production Commissioner, and including representatives from relevant departments and agencies; which committee shall have functions and responsibilities acceptable to the Bank, including approving the project’s annual work plans and budgets and assisting with inter-departmental coordination and convergence;

Sections and Description



The Project Implementing Entity shall establish within one (1) month from the Effective Date and maintain throughout the period of project implementation, a State Project Management Unit (SPMU) within the DoAB, to be headed by a project director and comprising staff from relevant departments and agencies and consultants in financial management, procurement, monitoring and evaluation, social development, gender, and environmental safeguards, and other experienced and qualified staff and consultants, all in sufficient numbers and under terms of reference acceptable to the Bank. The SPMU shall be responsible for day-to-day project implementation and monitoring, and shall have functions and responsibilities acceptable to the Bank, including preparing annual work plans and budgets and ensuring all project activities are planned, financed and implemented accordingly; ensuring project implementation is in accordance with the Project Implementation Plan (PIP), Community Operation Manual (COM) and COVID-19 Economic Recovery Response Manual (CERRM); ensuring that procurement and financial management activities are carried out in a timely manner in accordance with the PIP, COM and CERRM; ensuring social and environmental safeguards/standards compliance; monitoring project activities; and preparing quarterly and annual project progress reports, mid-term report and end-term report and ensuring their timely submission to the Bank;

Sections and Description

The Project Implementing Entity shall establish within one (1) month of the Effective Date, and maintain throughout the period of project implementation, District Project Management Units (DPMUs) in each of the targeted districts as enumerated in the PIP, chaired by the respective district project managers and comprising of experienced and qualified staff and consultants, in sufficient numbers and under terms of reference acceptable to the Bank, which unit shall be responsible for day-to-day project implementation at the district level and ensuring that project activities are included in the district development plans;

Sections and Description

The Project Implementing Entity shall establish within one (1) month of the Effective Date, and maintain throughout the period of project implementation, Block Project Implementation Units (BPIUs) in each of the targeted blocks as enumerated in the PIP, chaired by the respective block project managers and comprising of experienced and qualified staff and consultants, in sufficient numbers and under terms of reference acceptable to the Bank, which unit shall be responsible for day-to-day project implementation at the block level.

Sections and Description

For purposes of carrying out the activities under Part 2.1(iii), 2.2(i) and Part 3.2(iii) of the project, the Project Implementing Entity shall ensure that Grants are made to selected Community Institutions (“Beneficiaries”) in accordance with the eligibility criteria and procedures set forth in the COM.

Upon selection of Beneficiaries based on grant proposals submitted by the Community Institutions in accordance with the COM, the Project Implementing Entity shall issue a Grant Approval Letter to each Beneficiary, under terms and conditions acceptable to the Bank, as set forth in the COM

Sections and Description

The Project Implementing Entity shall no later than one (1) month of the Effective Date, prepare, approve and adopt a COVID-19 Economic Recovery Response Manual (CERRM) in a manner and substance satisfactory to the Bank, and thereafter carry out Part 4 of the project in accordance with the provisions of the CERRM, which manual shall include, inter alia the activities, implementation arrangements and monitoring mechanisms for Part 4 of the project;



Sections and Description

The Project Implementing Entity shall: (a) ensure that the Project’s activities involving collection, storage, usage, and/or processing of Personal Data are carried out with due regard to the Borrower’s existing legal framework and appropriate international data protection and privacy standards and practices; and (b) in the event that, during the implementation of the Project, the approval of any new legislation regarding Personal Data protection may have an impact on the activities financed by the Project, ensure that a technical analysis of said impact is conducted, and that the necessary recommendations and adjustments, are implemented, as appropriate; and

Sections and Description

The Project Implementing Entity shall no later than three (3) months of the Effective Date, prepare, approve and adopt a Community Operation Manual (COM) in a manner and substance satisfactory to the Bank, and thereafter carry out Parts 2.1(iii), 2.2(i) and 3.2(iii) of the Project in accordance with the provisions of the COM, which manual shall include, inter alia the criteria and process of selection of Beneficiaries to receive Grants, financial management and procurement requirements, monitoring and evaluation procedures, reporting arrangements, and the model form for the Grant Approval Letter.

Conditions

Type	Description
Disbursement	No withdrawal shall be made for payments made prior to the Signature Date.
Disbursement	No withdrawal shall be made under Category (2), unless and until the Project Implementing Entity has prepared, approved and adopted the Community Operations Manual (COM) in a manner and substance satisfactory to the Bank.
Disbursement	No withdrawal shall be made under Category (3), unless and until the Project Implementing Entity has prepared, approved and adopted the COVID-19 Economic Recovery Response Manual (CERRM) in a manner and substance satisfactory to the Bank.
Disbursement	No withdrawal shall be made under Category (4), unless and until the Bank is satisfied, and has notified the Borrower and the Project Implementing Entity of its satisfaction, that all of the following conditions have been met: (i) the Borrower and the Project Implementing Entity have determined that an Eligible Crisis or Health Emergency has occurred, have furnished to the Bank a request to include certain activities in the Contingency Emergency Response Component (CER Component) in order to respond to said Eligible Crisis or Health Emergency, and the Bank has agreed with such determination, accepted said request, and notified the Borrower and the Project Implementing Entity thereof;



	<p>(ii) the Project Implementing Entity has prepared and disclosed all safeguard instruments, acceptable to the Bank, required for said activities, and has implemented any actions which are required to be taken under said instruments all in accordance with the provisions of Section I.G.4(b) of the Schedule to the Project Agreement;</p> <p>(iii) the Project Implementing Entity has provided sufficient evidence satisfactory to the Bank, that the Coordinating Authority has adequate staff and resources in accordance with the provision of Section I.G.3 of the Schedule to the Project Agreement, for the purposes of said activities; and</p> <p>(iv) the Project Implementing Entity has adopted a Contingent Emergency Response Component Manual (CERCM) in form, substance and manner acceptable to the Bank and the provisions of the CERCM remain, or have been updated in accordance with the provisions of Section I.G.1(a) of the Schedule to the Project Agreement, so as to be appropriate for the inclusion and implementation of said activities under the respective CER Component.</p>
Type Disbursement	Description The Borrower shall not submit withdrawal applications under Category (3) for expenditures incurred after eighteen (18) months from the Effective Date.



I. STRATEGIC CONTEXT

A. Country Context

1. **India's Gross Domestic Product (GDP) growth has slowed in the past three years, and the COVID-19 outbreak is expected to have a significant impact.** Growth has moderated from an average of 7.4% during FY15/16-FY18/19 to an estimated 4.2% in FY19/20. The growth deceleration was due mostly to unresolved domestic issues (impaired balance sheets in the banking and corporate sectors), which were compounded by stress in the non-banking segment of the financial sector, and a marked decline in consumption on the back of weak rural income growth. Against this backdrop, the outbreak of COVID-19 and the public health responses adopted to counter it have significantly altered the growth trajectory of the economy, which is now expected to contract sharply in FY20/21. On the fiscal side, the general government deficit is expected to widen significantly in FY20/21, owing to weak activity and revenues as well as higher spending needs. However, the current account balance is expected to improve in FY20/21, reflecting mostly a sizeable contraction in imports and a large decline in oil prices. Given this, India's foreign exchange reserves are expected to remain comfortable.

2. **Although India has made remarkable progress in reducing absolute poverty, the COVID-19 outbreak may have reversed the course of poverty reduction.** Between 2011-12 and 2017, India's poverty rate is estimated to have declined from 22.5% to values ranging from 8.1% to 11.3%. Recent projections of GDP per capita growth rate indicate that as result of the pandemic, poverty rates in 2020 have likely reverted to estimated levels in 2016¹. The extent of vulnerability is reflected in labor market indicators from high frequency surveys. Data from the Centre for Monitoring Indian Economy (CMIE), shows urban households are facing greater vulnerabilities: between September-December 2019 and May-August 2020, the proportion of people working in urban and rural areas has fallen by 4.2 and 3.8 percentage points respectively. Approximately, 11% and 7% of urban and rural individuals, identifying themselves to be employed in the recent period, have performed zero hours of work in the past week. Short-term employment outlook is contingent on whether these temporarily unemployed workers can fully re-enter the labor force. Overall, the pandemic is estimated to have raised urban poverty, creating a set of new poor that are likely to be engaged in non-farm sector and receive at least secondary or tertiary education, as compared to existing poorer households who are predominantly rural with lower levels of education.

B. Sectoral and Institutional Context

3. **Chhattisgarh is a relatively young state, with abundant natural resources and a mining-led economy.** Formed in 2000, it is one of the richest Indian states in terms of natural² and mineral resources.³ While 80% of the state population is dependent on the agriculture sector, it contributes only 17% to gross state domestic product.⁴ Agriculture, forestry, fisheries and animal husbandry are all significant contributors to the gross state domestic product at varying levels (12.4%, 10.9%, 5.5% and 20.4%,

¹ http://macropovertyoutlook.worldbank.org/mpo_files/mpo/mpo-am20-ind-scope.pdf

² Chhattisgarh is rich in biodiversity with 46% under forested area, the second-highest carbon stock in the country among large states, annual average rainfall of approximately 1,292 mm, groundwater development of 20% and four major river systems.

³ Leading producer of coal, steel, tin and iron ore in the country and third highest in value of major mineral production.

⁴ Economic Survey, Government of Chhattisgarh, 2019-20 <http://descg.gov.in/pdf/publications/latest/ES2019-20/EconomicSurvey2019-20.pdf>

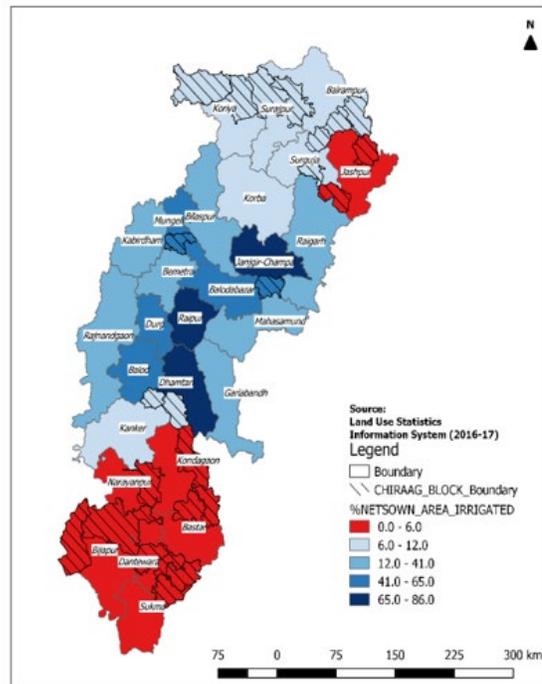


respectively).⁵ However, state growth is led by the mining-driven manufacturing sector which contributes 47.65% of gross state domestic product. The past decade’s overall state growth has been volatile and gross value-added growth in employment-intensive sectors remains low. Chhattisgarh has the lowest per-capita income in the country and the gap between it and the national average is widening.⁶

4. **Resource-use stress has constrained production.** The region’s natural systems – forests, grazing land, aquatic bodies, soil, nutrients and biodiversity – enable a mixed production system which includes livestock production, inland fisheries and forestry which determine overall economic opportunities. However, uneven distribution of rainfall, reduced soil fertility due to erosion, delinked crop and animal husbandry, occasional droughts and the depletion of forests have put stress on an otherwise balanced ecosystem. The state’s rich biodiversity⁷ provides an opportunity for the state to facilitate sustainable growth across primary sub-sectors in an integrated manner. The three diverse agro-climatic zones of the Central Plains, Northern Hills and Southern Bastar Plateau are key enablers for further diversification.

5. **Farming is primarily smallholder, rainfed, single-cropped (paddy) and subsistence in nature.** About 76% of the state’s 3.74 million farmers are small and marginal, own 34% of land and have an average landholding of 1.6 hectares. Rice is the major crop of the state (66% of cropped area), but the ‘rice bowl’ is restricted to the Central Plains where 35% of the state’s irrigated area is concentrated. Combined, the north and south have less than 1% of net sown area irrigated (see Figure 1).⁸ Average cropping intensity is low (138%), as is productivity across crops (food grain productivity: 1,532 kg/ha against national average of 2,101 kg/ha), with the lowest intensity in the southern area. The agriculture base is diversified with fruits (mango, tamarind, jackfruit, banana and papaya) and vegetables, spices, flowers, medicinal and aromatic plants, all in significant production, although marked by regional variations. Diversification at household-level in the southern region is limited, with the majority of farmers investing only in a single season largely due to erratic rainfall and low irrigation infrastructure. Low diversification of the cropping system and insufficient investment in appropriate irrigation and postharvest technology have limited household-level economic returns. A diversified primary sector is a key economic growth opportunity for the state.

Figure 1. Chhattisgarh State Map Depicting Percentage of Net Sown Area that is Irrigated



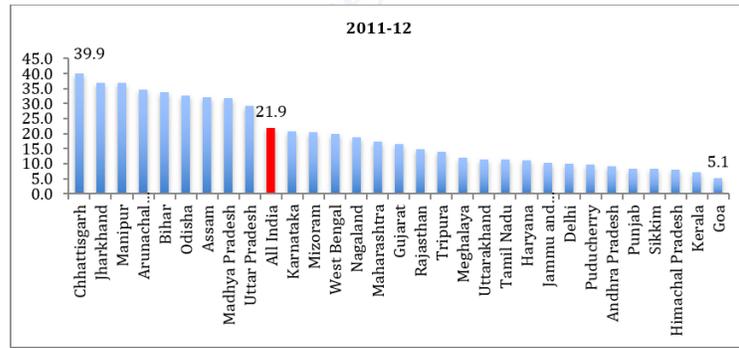
⁵ Economic Survey, Government of Chhattisgarh, 2019-20 <http://descg.gov.in/pdf/publications/latest/ES2019-20/EconomicSurvey2019-20.pdf>
⁶ States of Growth, CRISIL 2.0, 2019.
⁷ Notably more than 19,116 varieties of rice are grown in the State.
⁸ Census of India, 2011.



6. High levels of poverty and malnutrition are concentrated in Chhattisgarh’s northern and southern tribal-majority regions.

While Chhattisgarh has made progress over the past two decades in reducing income poverty as well as acute undernutrition, both continue to pose significant challenges. Home to 26 million people, Chhattisgarh has the highest poverty rate in India (40%), with poverty reduction lagging behind all other states (see Figure 2).⁹ Most industrial development and primary sector growth is restricted to the central plain areas, while the highest concentration of poverty is in the northern and southern regions (13

Figure 2. Percentage of Population Below the Poverty Line (by State)



out of 27 state districts). The inter-district variation in poverty is high in these regions with 7 out of 13 districts among the most backward in the country,¹⁰ and 70% of the mostly tribal population dependent on agriculture and forest produce for their livelihood. Compared to the national average of 8.6%, Chhattisgarh has the highest proportion of tribal groups¹¹ (31.6%) in India among large states.¹² Approximately 700 tribes, officially designated as Scheduled Tribes (STs), enjoy special constitutional and legal safeguards recognizing their historical disadvantage. At 51%, ST poverty rate in Chhattisgarh registers among the highest poverty rates in India (see Figure 3a). In 9 out of the 13 districts, the number of undernourished and anemic women is higher than the state average.¹³ These areas are further characterized by child undernourishment (see Figure 3b),¹⁴ where 37% of children under 5 years have stunted growth, 38% are underweight, 23% are wasted and 47% of women in the reproductive age group are anemic.¹⁵ Improvements in nutrition are, therefore, critical to the attainment of the state’s human capital development and realization of its full earning potential.

7. Gaps in existing food and agriculture systems contribute to undernutrition and micronutrient deficiencies.

The key tenet of traditional tribal food systems was built around diversity – freely available forest foods (fruits and berries), cultivated millets, inland fisheries and hunted animals. Diversity in food systems has transformed with consumption habits (growing dependence on rice), access to naturally available foods (reduced access to forest produce for sale, climate change) and household economics (reduced incomes). The result has been low dietary diversity reflected by a Household Dietary Diversity Score (HDDS)¹⁶ of 9.41 out of 12, with low intake of fruits, proteins and dairy products.¹⁷ The daily dietary

⁹ State Brief, World Bank Group (2016).

¹⁰ Part of Government of India’s Transformation of Aspirational Districts Program.

¹¹ Tribal groups or *Adivasis* are the earliest inhabitants of India and literally means ‘*Adi* or earliest time’, and ‘*vasi* or resident of’.

¹² Census of India, 2011.

¹³ <https://www.orfonline.org/expert-speak/hidden-failures-malnourished-south-health-nutrition-chhattisgarh-45474/>, Observer Research Foundation

¹⁴ Why Invest in Nutrition? World Bank Group. <http://siteresources.worldbank.org/NUTRITION/Resources/281846-1131636806329/NutritionStrategyCh1.pdf>

¹⁵ National Family Health Survey 2015-16.

¹⁶ HDDS is a qualitative measure of food consumption that reflects household access to a variety of foods.

¹⁷ India Food-Based Dietary Guidelines and Nutrition Intake in India, Report No. 560, National Sample Survey Organization, 2011.



recommendation of 2,500 calories from various food groups costs approximately INR 130/person/day. For a family of five, this is INR 650/day or INR 19,500/month. Smallholdings and limited asset base inhibit STs’ ability to meet the daily dietary recommendation and there is an urgent need to intensify production systems, diversify income sources through the creation of assets at the household level and optimally use available natural resources to increase food sources and dietary diversity. Nutrition-sensitive agriculture is a food-based approach to agricultural development that uses food fortification, nutritionally rich foods, and dietary diversity to overcome malnutrition and micronutrient deficiencies.¹⁸ Combined with nutrition-supportive actions, steps which include nutrition and health behavior change communication and are carefully designed to empower women,¹⁹ can support diversity, accessibility and consumption of nutritious food and address undernutrition and micro-nutrient deficiencies in mothers and children.

Figure 1a. Percentage of spread of Scheduled Tribe population vis a vis poverty across state districts

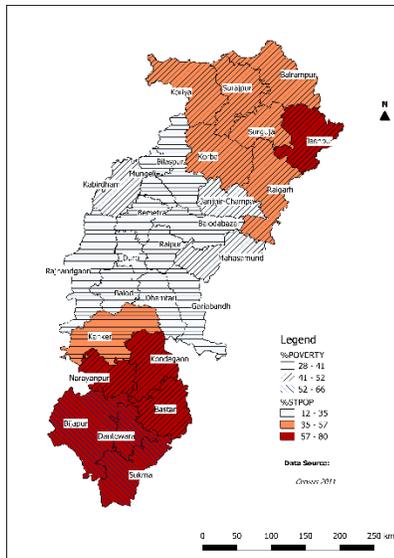
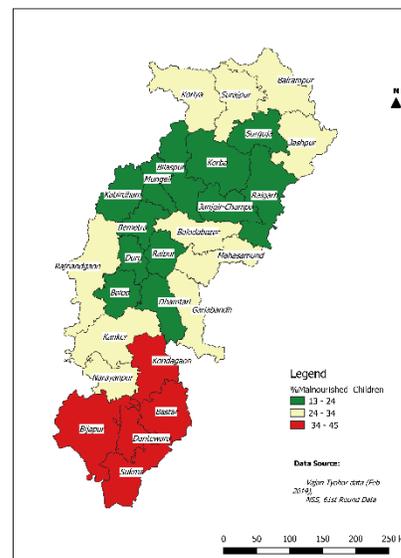


Figure 2b. Percentage of malnourished children across state districts



8. Low access to agri-finance and markets remain barriers for surplus producers and regional growth.

Weekly *haat bazars* (local markets), with temporary, informal and rudimentary market mechanisms, are the primary points of sale for tribal producers and entrepreneurs. The unorganized nature of these *haats*, high cost of aggregation and transportation, low bargaining power with traders and information asymmetry, limits the realization of market value for tribal farmers. Tribal farmers also depend on traders for non-institutional sources of credit since Chhattisgarh is among the bottom five states for access to institutional credit for agriculture and allied sectors, with credit flow as a percentage of state agriculture GDP at less than 40%.²⁰ In northern and southern districts, financial inclusion (branch, deposit, credit and

¹⁸ Defined by Food and Agriculture Organization of the United Nation’s (FAO).

¹⁹ Marie T. Ruel, Agnes R. Quisumbing, and Mysbah Balagamwala. 2017. “Nutrition-Sensitive Agriculture: What Have We Learned and Where Do We Go from Here?” 01681. IFPRI Discussion Paper. Washington, DC: Poverty, Health, and Nutrition Division of the International Food Policy Research Institute (IFPRI).

²⁰ Report of Internal Working Group to Review Agricultural Credit, Reserve Bank of India, 2019.



insurance penetration) is among the lowest in the country.²¹

9. Chhattisgarh is a climate hotspot, and rural women and tribal households face significant impacts.

Chhattisgarh has the highest projected decrease in living standards (9.8%) under the carbon-intensive scenario by 2050.²² Chhattisgarh's State Action Plan for Climate Change highlights the risks faced in the southern region due to overdependence on rainfed agriculture, animal husbandry, fisheries and forests. Declining forest cover and soil degradation are expected to further aggravate the resource constraints and disproportionately affect tribal poor households. Risk mitigation and adaption approaches under the State Action Plan for Climate Change include integrated natural resource management (INRM), nutrition-supportive and resilient integrated farming systems (IFS) following climate smart agriculture (CSA) and resource-efficient principles, and value chain approaches linked to profitable markets. In Chhattisgarh, women farm workers form almost 66% of the total labor force.²³ These figures are even higher for ST women. Primarily driven by male out-migration, apart from crop weeding, manuring and harvesting, women farm workers and women cultivators are the leading actors in all postharvest and storage operations.²⁴ However, their capacity and decision-making roles regarding management of resources, knowledge and skill sets to enhance productivity and access technology effectively remain limited.²⁵ Climate shifts combined with: (a) high dependence on marginal agriculture and allied activities; (b) low access to agriculture technology and postharvest technology; (c) low levels of skilling; (d) low resource management capacity; and (e) stagnant productivity outcomes have a higher impact on women farm workers and women cultivators compared to men.

10. Left-wing extremism (LWE), state service delivery and access to economic opportunities are inter-linked factors for Chhattisgarh's inclusive growth.

Chhattisgarh has, in the past, been affected by LWE that has impacted the state's service delivery and access to economic opportunities. The Government of India's (GoI) multi-pronged strategy²⁶ to address these historical issues aims to strengthen state service delivery, improve community participation and enable access to entitlements and state-led developmental initiatives. Addressing social unrest by diversifying economic opportunities is thus central to the development of the state.

11. The COVID-19 pandemic has severely disrupted people's access to food, income, social services and economic opportunities, especially in rural and tribal areas.

With job opportunities unlikely to return to normal under the current depressed economic situation, many migrant laborers have returned to their villages in Chhattisgarh, thus potentially aggravating the rural joblessness situation. Household incomes in remote tribal areas have been particularly affected, with many dependent on remittances, collection of minor forest produce and subsistence agriculture. Though the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and the newly launched *Garib Kalyan Rojgar Yojana*²⁷ have eased the pressure on rural jobs search, the need to create more income and job opportunity around both farm

²¹ Seven of the bottom 50 districts in India on financial inclusion fall in northern and southern Chhattisgarh region, CRISIL Inclusive 2018. Branch penetration, deposit penetration, credit penetration, and insurance penetration - into one metric.

²² India's Hotspots: The Impact of Precipitation and Temperature Change on Living Standards, World Bank Group [2018]

²³ Climate change affecting women farmers the most in Chhattisgarh, Oxfam India, 2015

²⁴ A study on status of agriculture and role of women in agriculture of Chhattisgarh state; 2016

²⁵ Observations based on field consultations

²⁶ Transformation of Aspirational Districts Program (TADP) aims at improving service delivery in LWE affected districts by ensuring convergence of Government initiatives of States and Centre, collaboration between different arms of Government and professional technical assistance.

Source: <https://niti.gov.in/about-aspirational-districts-programme>

²⁷ An employment cum rural public works [campaign](#) to empower and provide livelihood opportunities in areas/villages with a large number of returnee migrant workers affected by COVID-19 with an outlay of INR 50,000 crores.



and non-farm activities at the local level has become paramount.²⁸ Lack of income and cash liquidity will also negatively affect the upcoming agriculture season as farmers may find it difficult to buy inputs and services. Further, with weakening household income, access to quality, nutritious food could be drastically reduced, thereby impacting vulnerable segments of the community including women and children.

12. **To address these challenges, the Government of Chhattisgarh (GoCG) is promoting inclusive, resource-efficient rural growth with strengthened last-mile service delivery.** The state's vision charts an alternative model of development focused on rural growth leveraging natural resources, augmenting agriculture and allied sector-based multiple livelihoods, building resilience against climate shocks, and contributing to household nutrition security in remote tribal-dominated areas. The vision is reflected in three flagship schemes namely: (i) *Narwa, Garuwa, Ghuruwa, Baadi (NGGB)* under *Suraji Gaon Yojana* – rural transformation leveraging traditional knowledge on water conservation, livestock management, organic manure and backyard nutrition for resource-efficient growth; (ii) *GoDhan Nyay Yojana* – enhancing livestock farmers' income, promoting use of organic manure, improving soil fertility, availability of safe and nutritive food; and (iii) *Mukhyamantri Suposhan Abhiyaan*: provisioning of fresh, nutritious food to malnourished children and anemic women through *panchayats* and self-help groups (SHGs).

13. The NGGB policy promotes a sustainable and IFS approach focused on water management, integration of composting to build soil health, promotion of animal husbandry and sustainable agriculture on private and other lands. The policy is aligned with landscape approaches, conservation agriculture principles²⁹ and globally promoted IFS for sustainable development and offers opportunities for sustainable use of natural resources and IFS for year-round production of nutritive food for local consumption and wellness markets. The state government also provided land rights to 416,000 individuals and communities under the Forest Rights Act³⁰ which need to be supported with financial investments, inputs and extension services. With access to improved water management and other critical input support, the production systems in *baadi*³¹ and Forest Rights Act lands could be developed to address local food and nutrition challenges and generate marketable surplus.

14. While NGGB will lead to accelerated and sustainable production of agriculture, horticulture, livestock, fisheries and agroforestry produce, Chhattisgarh's New Industrial Policy (2019-2024)³² and recent initiatives³³ aim at promoting local aggregation and value addition by women and Scheduled Caste (SC)/ST entrepreneurs, and linking them with small and medium enterprises and food parks.

C. Relevance to Higher Level Objectives

15. **The Project is fully aligned with the Bank's India Country Partnership Framework (CPF) FY 18-22** discussed at the Board on September 20, 2018 (Report No. 126667-IN) and contributes to CPF Pillar 1: Resource Efficient Growth, and Pillar 3: Investing in Human Capital. It specifically addresses **Objective 1.1:**

²⁸ <https://iw wage.org/wp-content/uploads/2020/06/Voices-from-the-Field-compressed.pdf>

²⁹ <http://www.fao.org/conservation-agriculture/en/>

³⁰ Per the Forest Rights Act provisions, tribal households living on and traditionally cultivating land before 2005 need to be given individual land rights. The Government has so far received 890,000 claims under this Act.

³¹ Small garden developed by households on their own private land adjacent to their house.

³² <https://industries.NRC.gov.in/pdf/policy2014-19/Industrial%20Policy%202014-19%20Translated%2012Feb2016.pdf>

³³ The GoCG has taken steps to brand its horticulture, forestry and handloom products (Produce of Chhattisgarh) and take them to national and international markets. An international buyer-seller meet led by the Chief Minister in November 2019 saw an impressive turn out with buyers from 17 countries and many Indian states participating and signing memoranda of understanding.



Promote more resource-efficient, inclusive, and diversified growth in the rural sector through CPF sub-objective indicators related to: (a) water use efficiency in agriculture (1.1.1); (b) additional land area where sustainable land management practices have been adopted (1.1.3); (c) increase in households with at least 50% increase in income (1.1.4); and (d) SHG households that have at least one additional source of income (1.1.5). The project also responds to **Objective 3.1: Enhance investment in early years of children's development** through the CPF sub-objective indicator on percentage of children aged 6-23 months receiving age-appropriate foods (3.1.1).

16. The project is aligned with the national objective of doubling farmer incomes, with the specific aim of facilitating inclusive development of tribal communities in Chhattisgarh's southern region. This approach supports and will contribute to Gol's Transformation of Aspirational Districts Program. The project is also aligned with the Gol initiative on forming and supporting Farmer Producer Organizations (FPOs) over the next five years.³⁴

17. **The proposed project is well-positioned to contribute to India's National Action Plan on Climate Change and the State Action Plan on Climate Change.** The project design recognizes that ST communities must be partners in the strategy for natural resource conservation and sustainable land use, and to address the impact of climate change on communities.

18. **Impact of the COVID-19 pandemic on the country and government response.** In India, the pandemic and the national lockdown from March-May 2020 affected economic activity, with real GDP contracting by nearly 24% in Q1 FY21 (April-June 2020). Until mid-March 2020, India was impacted indirectly via trade channels, as key imported inputs to domestic production were impeded, supply chains were disrupted, and global trade slowed. As of March 25, the Gol implemented a country-wide lockdown to contain domestic contagion, and several states imposed additional curfew measures. As a result, economic activity, particularly industry and services, slowed sharply.

19. According to the World Bank's latest forecast, economic growth is expected to decline to -9.6% in FY21 and recover gradually thereafter. The financing needs of the Gol are expected to rise significantly. The sharp economic slowdown has affected revenues disproportionately (at central and state levels), with central government revenues declining by over 40% in the April-July period and states facing a shortfall of a similar magnitude. At the same time, expenditure needs have risen. As a result, the general government deficit is expected to rise above 12% in FY21 and public and publicly guaranteed debt to reach above 90%. The bulk of the required financing is expected to be sourced from domestic markets which for the moment have sufficient liquidity, with only a minor contribution from international borrowing.

20. The COVID-19 pandemic has exacerbated the vulnerabilities for traditionally excluded groups, such as youth and women. In addition, interstate migrants are at risk of increased poverty and destitution. Estimates from the Gol's Economic Survey highlight that the magnitude of India's inter-state labor migration was close to 9 million annually between 2011 and 2016 and migrant remittances in lower-income Indian states like Bihar accounted for 35.6% of gross state domestic product (GSDP) in 2011-12. Micro, small and medium enterprises (MSMEs) that account for the largest non-farm employment (30%)

³⁴ FPOs could be Farmer Producer Companies or Cooperatives as per local context and preference of the producers.

³⁴ In February 2020, the Central Government's Cabinet Committee on Economic Affairs has approved the formation and support for 10,000 FPOs between 2019-20 to 2023-24 to ensure economies of scale for farmers. <https://pib.gov.in/newsite/PrintRelease.aspx?relid=199421>



with about 20% female participation are considered to have been impacted the most due to lockdown.

21. **The GoI has unveiled a response package corresponding to 10% of GDP, including:**

- **Pradhan Mantri Garib Kalyan Yojana (PMGKY), to protect the poor and vulnerable impacted by Coronavirus Containment Measures**, expected to cost approximately \$23 billion.
- **MSME support** includes Emergency Credit Line Guarantee Scheme for INR. 3 trillion,³⁵ INR. 200 billion subordinate debt for stressed MSMEs, INR. 100 billion to provide equity funding for MSMEs with growth potential and change in the definition of MSMEs, by increasing investment limits and firm turnover, to help incentivize firms to grow.
- **Agriculture infrastructure fund** - proposed financing facility of INR. 1 trillion (funded by the National Bank for Agriculture and Rural Development) to promote postharvest management infrastructure and, **Micro-Food Enterprise** - INR. 100 billion for technical upgrade and promotion of clusters of local products.
- **Outlay of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** - a universal employment guarantee program, increased by INR. 400 billion.
- **Increased state government borrowing-limit**, from 3% to 5% of GSDP (added INR 4.28 trillion).
- **Long-Term Repo Operations (LTROs) and Special Liquidity Facility:** To alleviate cash flow pressures, the Reserve Bank of India has conducted LTROs and Targeted LTROs totaling INR 9.6 trillion (about 4.5% of GDP) since February 2020. Moreover, a Special Liquidity Facility for mutual funds of INR 500 billion was opened on April 27, 2020, to ease liquidity pressures on mutual funds.

22. **World Bank Group (WBG) support for responding to the crisis.** In alignment with its global response, the WBG has been closely supporting GoI's strategy, which consists of *three phases*. In the *first phase*, the GoI tackled health aspects, and partnered with the Bank to support a \$1 billion health project. In the *second phase*, GoI invested \$23 billion in a social protection program to support poor and vulnerable communities during lockdown, and the Bank provided financing of \$750 million. In the *third phase*, GoI focused on economic stabilization and reducing the costs of the lockdown. This includes support to MSMEs and their workers during lockdown, by committing about 1.5% of GDP to MSME finance. Bank financing of \$750 million is supporting this program to provide liquidity for their balance sheets, to mitigate against potential solvency problems and job losses, and to lay the foundation for a stronger MSME financing ecosystem in the recovery phase.

23. Additionally, the Bank activated the Contingent Emergency Response Component (CERC) in five projects to support the state governments' COVID-19 relief efforts. Moreover, many projects made special provisions for COVID-19 Assistance Packages within their project scope. Going forward, the Bank will be supporting the GoI under the following broad themes:

- (i) **Saving lives:** Other than the ongoing health programs, the Bank is a potential partner with GoI on its flagship program of *Atmanirbhar Swasth Bharat Yojna* which aims at strengthening the health sector in the country by strengthening healthcare services, health emergency preparedness and response and strengthen core capacities as per the International Health Regulations. In addition, the Bank is exploring innovative ways of support to the state and central governments through

³⁵ Details: <https://pib.gov.in/PressReleasePage.aspx?PRID=1625306>.



upcoming operations in the education (Andhra Pradesh, Gujarat) and health (Mizoram, Meghalaya) sectors.

- (ii) **Protecting poor and vulnerable people** The Bank will further support the efforts of the GoI under this pillar through the development policy lending II for social protection with a loan of \$250 million. This second phase of the social protection program is intended to enhance coordination across schemes and ministries to build a disaster-responsive social protection system and expand the ability of India's safety nets architecture to cater to diverse needs across states and vulnerable groups. Some upcoming projects have specific COVID-19 components supporting this pillar, such as Fisheries Sector COVID-19 Response and Recovery.
- (iii) **Sustainable growth and job creation:** The Bank is preparing a project on raising and accelerating MSME productivity which will focus on strengthening institutions and markets to enhance MSME productivity. Job creation is a special focus under the infrastructure projects as well.
- (iv) **Strengthening policies, institutions and investments for rebuilding better:** This is an all encompassing theme under India CPF and is integrated in most of the projects. The upcoming engagement with the National Disaster Management Agency on Seismic Risk Mitigation Project is one such example.

24. The IMF does not have an active lending program in India. However, it undertakes regular macroeconomic supervision and Article IV consultations twice yearly. The Bank and IMF teams regularly exchange views and information. Partnerships with other donors was brought to fruition in both the social protection and MSME COVID-19 response development policy operations (DPO). Under the social protection DPO, the Bank worked in collaboration with the Asian Development Bank (ADB), Agence Française de Développement (AFD), and Kreditanstalt fuer Wiederaufbau (KfW). The Japanese International Cooperation Agency (JICA), Asian Infrastructure Investment Bank (AIIB), the New Development Bank (NDB) and International Fund for Agriculture (IFAD) are also exploring potential parallel financing. In parallel, the ADB and JICA are exploring MSME sector support. Discussions are ongoing to expand the Bank's technical assistance through financing from the Bill and Melinda Gates Foundation (BMGF) and the United Kingdom's Foreign, Commonwealth and Development Office (FCDO).

II. PROJECT DESCRIPTION

A. Project Development Objective

25. **The project development objective (PDO)** is to improve income opportunities and the availability of nutritious foods in targeted households of Chhattisgarh's tribal-dominated areas.

26. **The PDO level indicators are:** (i) Beneficiary households with intensified and diversified sources of income (number, disaggregated by social category in percentage);³⁶ (ii) Beneficiary households with

³⁶ Increased intensity of income sources means a household has increased land farmed or input use to agriculture field crop production or horticulture, increased livestock herd size, increased aquaculture pond area, or increased collection of agroforestry commodities. Increased diversity of income sources means a household has diversified production either across or within LGs. Diversification across LGs is defined as engaging in at least one other agriculture or allied subsector (i.e. agriculture/field crop production, horticulture, livestock rearing, aquaculture,



increased number of food groups available (number, disaggregated by social category in percentage); (iii) Farmers reached with agriculture assets/services (core result indicator, number).

B. Project Components

27. The Chhattisgarh Inclusive, Rural and Accelerated Agriculture Growth Project (CHIRAAG) is organized into six interlinked components including an emergency response component. A more detailed description of the project components is available in Annex 1.

28. **Component 1: Community Empowerment and Institutional Strengthening (\$14.9 million).** Household and community capacity will be built to: (a) plan, implement, and monitor development investments; (b) leverage community institutions and collective action toward effective management of natural resources, productive infrastructure and private assets; and (c) undertake nutrition-supportive agriculture, adopt diet diversity and promote positive nutrition practices at the household level.

29. **Subcomponent 1.1 Participatory Village Planning and Community Institution Building (\$12.3 million):** (a) awareness generation on the project among the targeted communities through village entry, communication and social activities that foster social capital development and rapport building; (b) support for preparation, diagnostic studies and implementation of village development plans (VDPs), through a participatory planning process; and (c) formation, capacity building and regular training of community institutions to participate in Project planning and implementation processes.

30. **Sub-component 1.2 Household Food Availability and Nutrition Practices (\$2.6 million):** (a) design and implementation of a social and behavior change communication program to increase knowledge and influence adoption of positive nutrition related practices by households, especially focusing on adolescent girls and women, including conducting formative research; developing program content, modules, training manuals and materials; developing toolkit for village level facilitation; and recruiting and training nutrition facilitators; and (b) support for need-based initiatives to empower communities to identify and manage malnourished children with the help of frontline workers.

31. **Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems (\$48.5 million).** The component aims to sustainably develop and leverage natural resources as a foundation for developing more diverse, nutritive and productive food and agriculture systems that are more resilient to climate change. Sustainable use of natural resources for food, feed and energy requirements will help build household resilience to climate shocks while integrated food and agriculture systems will promote resource-efficient agriculture, diversify local livelihood options, increase the availability and diversity of food and agriculture commodities, as well as household food and nutrition security.

32. **Sub-component 2.1: Community-Based Natural Resource Management (\$19.6 million).** Support for development, management and sustainable utilization of natural resources, specifically water, soil and biodiversity, using traditional local knowledge, community-based management systems and modern technologies, including through: (a) investments in INRM, including land quality enhancement and rainwater harvesting activities; (b) investments in energy efficient water lifting and farm level irrigation

agroforestry, or wage labor in a farm or non-farm sector). Diversification within LGs means an increase in crop diversification (measured as a decrease in the Herfindahl-Hirschman index, based on land area allocated to different crops), livestock reared, fish species cultured, or agroforestry commodities collected.



infrastructure; and grants to community institutions for financing soil nutrition management technology demonstration; and (c) design and delivery of soil health cards.

33. Subcomponent 2.2: Integrated Food and Nutrition-Supportive Agriculture (\$28.9 million): (a) grants to community institutions for financing investment in productive assets and adoption of climate smart technologies and practices as per VDPs, including backyard poultry, fishery, small ruminants, goat and pig breeding units, community nursery and poultry mother units; (b) support for investments in gravity drip irrigation and fencing for orchards and *baadis*; (c) support for infrastructure and capacity building at community level, including through: (i) training and capacity building of community resources persons and producers; (ii) demonstration of integrated farming systems and crop specific models; (iii) support for inputs for individual and community *baadi*; (iv) support for village level input production and trivis/crates for artificial insemination; (v) support for community infrastructure at *gauthan* level for improved livestock feeding, manure management, storage, energy efficient tillage and farm operations; and (vi) fishery development; (d) capacity building at district and sub-district levels, including through: (i) support to Krishi Vigyan Kendras and government departments and agencies for establishing horticulture nurseries and upgrading department nurseries and brood hatcheries; and (ii) technical support for agro-forestry and biodiversity conservation, especially for local seeds and planting materials from village seed banks and use of drought-tolerant seeds; (e) capacity building at state level, including through: (i) capacity building of relevant departments for scaling up seed production of open pollinated varieties of pulses, millets, oilseeds and other underutilized tuber crops; and (ii) strengthening participation of agriculture universities to support seed production through supply of breeder seeds and revival of locally adapted seeds, demonstration of climate smart technologies and inputs, and preparation of economic and management models for *gauthans*.

34. Component 3: Value Addition and Market Access (\$10.3 million). This component aims to increase household incomes by promoting value addition, reduction in postharvest losses, and improved access to profitable markets (including wellness) for surplus produce. A focus on local processing will also improve household-level availability and consumption of nutritious food through: (a) promotion of safe food using preservation and energy efficient storage methods; (b) primary processing and value addition for local consumption and food waste reduction; (c) support to FPOs for aggregation, primary processing, value chain development of select commodities through public and private partnerships; and (d) upgrades to local rural market infrastructure and strengthening of community capacity.

35. Subcomponent 3.1: Value Addition for Nutrition (\$1.0 million): (a) support for village level energy efficient infrastructure for post-harvest, primary processing, packaging and storage; and (b) support for training nutri-entrepreneurs, including individuals and community groups, in value addition and energy efficient practices.

36. Subcomponent 3.2: Value Addition and Market Access (\$9.3 million): (a) establishment of a value chain development cell at the state level for undertaking value chain studies and identifying market opportunities for nutritive commodities, developing private sector partnerships, forming FPOs and building their capacity; provision of technical, financial and market access support to FPOs; and development of specific commodity value chains; (b) establishment of FPOs and their capacity building on climate smart value chain development and climate informed business plan development; (c) provision of grants to community institutions to support starting of business activities, creation of infrastructure, access to market and access to technology; and (d) investments for market support activities, including



certification, traceability, market intelligence, packaging, branding and promotion; and strengthening of select rural markets.

37. **Component 4: COVID-19 Economic Recovery Response (\$15.1 million).** Design and implementation of activities to restore livelihoods and support employment generation, including through provision of agriculture equipment, support for entrepreneurial activities, improvement of natural resources management and water availability, and increased awareness of COVID-19 precautions on safety and hygiene practices.

38. **Component 5: Project Management, Monitoring and Knowledge (\$11.2 million)**

39. **Sub-component 5.1: Project Monitoring and Management (\$10.7 million):** Support for project coordination, implementation, financial management, procurement, monitoring, evaluation and learning, and social and environmental safeguards/standards management at state, district and community levels.

40. **Sub-component 5.2: Knowledge Management and State Capacity (\$0.5 million):** (a) promotion of knowledge exchange through knowledge partnerships, events, conferences, bilateral meetings and workshops; (b) support for capturing, preserving and scaling up traditional knowledge and practices of tribal communities; and (c) supporting innovation at district level through strengthening of systems and processes, convergence, studies and events.

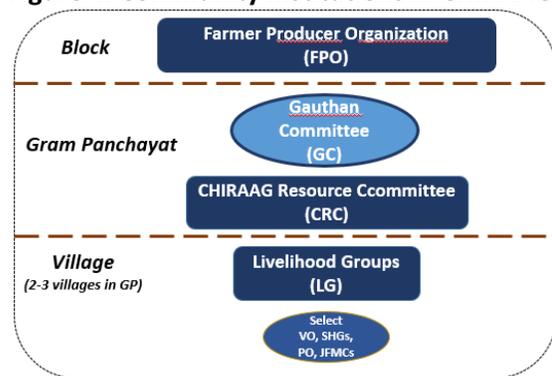
41. **Component 6: Contingent Emergency Response Component (\$0 million).** Provision of immediate response to an Eligible Crisis or Health Emergency.

C. Project Beneficiaries

42. The project will be implemented across 14 blocks from 8 districts. Thirteen of the 14 targeted blocks are remotely located in the southern region of the state, with a high concentration of tribal communities. One block, with a higher SC population density, is from the central plains area.

43. The project will reach 180,000 households from about 1,000 villages. In each district, 1-2 blocks will be targeted. Within the 14 blocks, project villages will be selected and prioritized based on geographical remoteness, tribal population, and status of existing/proposed *gauthans*.³⁷ Within the selected villages, all households will be eligible to participate in project supported community institutions, planning and implementation processes and access project investments and benefits. Community institutions directly eligible to receive project benefits are *Gauthan* Committees, CHIRAAG Resource Committee

Figure 4: Community Institutions in CHIRAAG



³⁷ GoCG has so far identified 500 *gauthans*. The targeted 1,000 villages are yet to be identified.



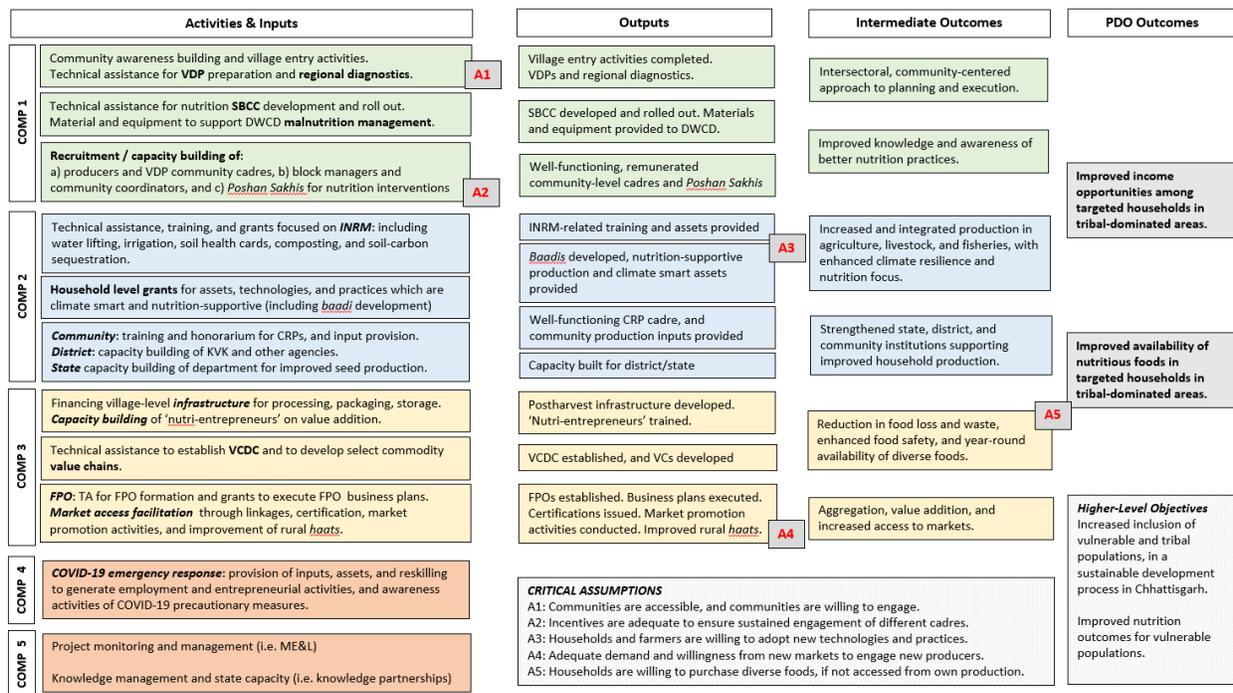
(CRC), livelihood groups (LGs), FPOs, select SHGs, village organizations, Joint Forest Management Committees and producer groups.

44. The agriculture department works largely with male farmers, mainly because land rights are in the name of male household members. The project, through championing nutrition-supportive agriculture, will facilitate the inclusion of more women household members in agriculture and allied support activities (extension, input provisioning, production and marketing decisions etc.) as well as support women members' ownership of assets (poultry birds, goats etc.), to strengthen their economic roles and recognized participation in agriculture.

45. The following GoCG line departments will benefit from state capacity building and knowledge partnerships with technical support agencies (TSAs): Agriculture Development and Farmer Welfare and Biotechnology (DoAB), Soil and Water Conservation, Horticulture, Livestock, Fisheries and the Chhattisgarh State Seed and Agriculture Development Corporation Limited (*Beej Nigam*).

46. Indirect beneficiaries of the project are: (a) local private sector, processors and exporters; and (b) national and global value chain actors.

D. Results Chain



E. Rationale for Bank Involvement and Role of Partners

47. The Bank has considerable global experience in resource-efficient, inclusive, and diversified growth



in the rural sector. With investments in similar projects in India,³⁸ Pakistan, Nepal, Sri Lanka and Bangladesh over the past two decades, the Bank's knowledge base, operational experience and lessons have informed the project design. Lessons in "scaling up" from other countries have been incorporated, and in keeping with the Lighthouse India approach to state-state learning, implementation and institutional partnerships with projects in India, as well as across the region, will be established for south-south knowledge exchange through technical assistance and exposure visits to other states, countries and regions (e.g. South East Asia, Latin America, China).

48. Linkages with other projects and sectors. As the core partner shepherding an inclusive development pathway for tribal community growth and development, the Bank will facilitate project linkages to the broader program, and other IBRD/IDA supporting projects. The Bank team will engage with global practices for health, nutrition and population and social development and labor to enable convergent action across projects specifically related to nutrition-supportive agriculture, inclusive rural development, resilient livelihood development and access to markets.

49. Linkages with other development partners. GoCG is engaging with IFAD to expand CHIRAAG interventions to other parts of the state, strategically bolstering development outcomes. In technical collaboration with the Bank, IFAD is preparing a separate project focused on northern Chhattisgarh, largely following CHIRAAG's design and approach. This complementary investment from IFAD, with strategic collaborative arrangements for bringing in global best practice and knowledge will contribute to the state's effort for a focused inclusive development agenda for the poorest of the poor. Technical support from development partners like the Bill and Melinda Gates Foundation (BMGF) and other bilateral and multi-lateral development agencies operational in the country will also be sought.

50. Linkages with agricultural research organizations. The Bank through its convening ability will facilitate partnership development with relevant national/international organizations i.e. the Food and Agriculture Organization of the United Nations, International Crop Research Institute for Semi-Arid Tropics, Biodiversity International, Central Food Technology Research Institute, etc.

51. The expected roles of partner agencies are as follows:

- (a) **Other line departments.** Close coordination and collaboration will be maintained with all relevant GoI and GoCG programs and interventions of other ministries/departments supporting socio-economic empowerment of communities. This will bring complementarity in approach, avoid duplication of effort and facilitate communities' access to multiple interventions and services.
- (b) **Private sector agencies.** For access to profitable markets (component 3), the project will support the fostering of partnerships with select private sector organizations and aim to maximize finance for development to draw upon complementary value chain investments from partnering firms in key commodities. Following Latin American productive alliance models,³⁹ FPOs will be linked to local processors and export firms, major national agribusiness players and organized retailers,

³⁸ For example, the Andhra Pradesh Rural Inclusive Growth Project, National Rural Livelihoods Project, Bihar Transformative Development Project etc.

³⁹ Paulo de Silva, Carmine. *Productive Alliances in Latin America and the Caribbean*. Collaborative arrangement between a small producer organization and an agribusiness firm, aiming at reducing technical, commercial, financial and/or social risks associated with its pursuit of potential income gains.



including International Finance Corporation investee clients. The project will aim to access national/global wellness markets for tribal products and seek International Finance Corporation advisory and facilitation support on strategic private sector investments in the state. Partnering private sector firms will be expected to invest, develop supply chains and create job opportunities.

- (c) **Technical Support Agencies.** To strengthen the technical capabilities of key directorates, the services of high-quality TSAs will be sourced under various project components. The TSAs will work with project counterparts in tandem and equally share implementation responsibilities i.e. assessments, guideline preparation, framework and knowledge support etc.

F. Lessons Learned and Reflected in the Project Design

52. The project design reflects lessons from inclusive livelihood, tribal development initiatives, CSA and successful nutrition-supportive agriculture interventions in India and globally. Lessons from Chhattisgarh and the state's experience that guided the project design include:

53. **Leveraging bottom-up participatory processes and community-based organizations, are key to tribal empowerment and sustainability of project interventions.** A flexible, non-prescriptive, process-oriented, demand side approach is critical to enable stakeholders to determine the scope of program activities, their timing, pace and sequencing. The promotion of IFS around multiple livelihoods for systematic utilization of natural resources and initiatives to increase agricultural production, as well as support broader policy initiatives that fall under the ambit of tribal *panchayats* will help to foster tribal empowerment and ensure sustainability.

54. **Livelihood diversification and sharper targeting of specific socioeconomic groups are a key strategic approach to augment income and build resilience of tribal groups.**⁴⁰ Diversification, harnessing underlying natural resource wealth, can increase incomes of participating tribal households. Diversification aimed at enhancing the basket of livelihood sources and complemented by provision of better infrastructure and capacity development support helps tribal households to increase income. Diversified production systems also build resilience against climate shocks in economically remunerative sub-sectors (agriculture, horticulture livestock, fisheries, sericulture, and agroforestry). A focus on the heterogeneities among indigenous people and the need for appropriate development strategies to meet the respective needs of target groups is a critical part of the targeting approach.

55. **Nutrition-sensitive agriculture programs have the potential to improve household nutrition, availability and dietary diversity.** A recent analysis of nutrition-sensitive agriculture across 19 African, Asian, Latin American and the Caribbean countries highlights the importance of developing context-specific activities; targeting social and behavior change communication (SBCC) activities along all agriculture-nutrition pathways; empowering women; focusing on opportunities for nutrition throughout value chains; strengthening coordination and collaboration; and investing strategically in partnerships and capacity building to ensure sustainability. These lessons have been taken into consideration in designing the project, to maximize the potential of nutrition-agriculture linkages for impact.

⁴⁰ Impact Assessment Report, Jharkhand-Chhattisgarh Tribal Development Program, Independent Evaluation Office, IFAD.



56. **Livelihood interventions need to factor in spatial and seasonal dynamics, livelihood resource base, viable investment per household and productive infrastructure at the project design stage.** A calibrated approach has been adopted in the project design ensuring equal focus on technical and value chain interventions to enhance agriculture competitiveness and resiliency, as well as community-based approaches to ensure inclusion of poor households. Further, the project emphasizes use of spatial analytics to locate project interventions in blocks (geographical clusters) that have the strongest potential for income impacts where enabling conditions already exist or can be achieved through planned government investments (such as access to irrigation and profitable markets).

57. **Social inclusion, community participation and transparency are key strategies, especially in LWE areas.** Lessons learned from a range of rural livelihood initiatives in Chhattisgarh demonstrate that to avoid exacerbating the LWE situation, it is important to ensure that projects: (a) include the poor, women and tribal community members in all aspects of implementation; (b) are relatively small in scale/have low visibility; (c) utilize local community members in project implementation; (d) are highly transparent with respect to targeting and finances; and (e) train and orient project staff on how to effectively operate in LWE-affected areas.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

58. GoCG's DoAB is the project implementation agency and nodal department for overall management and implementation. Under the aegis of DoAB, Directorates of Agriculture, Horticulture, Fisheries and Veterinary Services will support the project at various implementation levels. *Beej Nigam* will act as the project implementation agency for additional procurement services and undertake specific seed production sub-projects. See Annex 2 for detailed institutional and implementation arrangements.

(a) A high-level **Project Advisory Committee (PAC)**, chaired by the Chief Secretary will provide overall project oversight and policy guidance. A **Project Steering Committee** chaired by the Agriculture Production Commissioner will be responsible for approving and reviewing project annual budgets, work plans, physical and financial progress, and driving inter-departmental coordination and convergence. Project Steering Committee members will include the Agriculture Production Commissioner, DoAB Secretary, and Directors of Agriculture, Horticulture, Veterinary Services, Fisheries and relevant department/agencies, i.e. Rural Development, State Rural Livelihood Mission (SRLM),⁴¹ Women and Child Development, Tribal, Forest and *Beej Nigam*.

(b) **DoAB** will have overall responsibility for coordinating other agencies in the preparation of reports, annual work programs, budgets and procurement plans, reviewing and overseeing review meetings. DoAB will set up a **State Project Management Unit (SPMU)**, drawing officers from the Directorates of Agriculture, Horticulture, Livestock and Fisheries and engaging short-term consultants and technical service providers. The SPMU will be headed by a Project Director and supported by a Chief Operating Officer. The SPMU will have thematic specialists including experts on environmental management and social standards, financial management (FM), procurement, human resources and administration

⁴¹ Called BIHAAN locally.



activities. Multiple TSAs will be engaged to provide key technical support and backstopping needed for various project components. DoAB will assume direct responsibility for day-to-day project management, procurement consistency and compliance, coordination, oversight and monitoring, and implementation of project components.

(c) In targeted project districts, **District Project Management Units (DPMU)**, each under the direct supervision of a District Project Manager, supported by six coordinators selected from the market for major thematic areas, will monitor and implement the project. Deputy Directors for Agriculture, Horticulture, Fisheries and Veterinary Services along with the Assistant Soil Conservation Officer will provide technical and implementation guidance to DPMUs on a day-to-day basis. The project will also be reviewed by the District Collector in regular monthly district review meetings ensuring that the Project activities are included in the district development plans.

(d) At the block level, **Block Project Implementation Units (BPIUs)** will carry out day-to-day implementation and management of project activities, each supported by a Block Project Manager along with a team of 12 officers i.e., coordinator (markets & value chain), and cluster coordinators. This 12-member block team will play a critical role in project implementation. Supported by TSAs, the teams' capacity will be strengthened to ensure high-quality implementation.

(e) At the *Gram Panchayat (GP)* level, *Gauthan* Committees will be involved in facilitating village entry, VDPs and convergence. Under *Gauthan* Committees, a dedicated CRC⁴² will be formed to anchor project interventions and provide support for implementation and monitoring. At the village level, multi-commodity LGs will be formed for mobilizing interested producer households to improve their livelihood activities related to farming and allied sectors. The LGs will be consolidated into FPOs for improved postharvest management, value addition and market linkages. Spearhead teams will support the mobilization and capacity building of the above institutions, as well as provide extension and advisory services to producers. Spearhead teams will be managed and supervised by BPIUs. The project will provide on-the-job training to field level staff and community resource persons, noting their crucial role in anchoring last mile project implementation.

(f) DoAB has prepared a Project Implementation Plan (PIP) that provides the complete technical, operational and financial details of CHIRAAG, including project components, eligible activities and processes, mechanisms for planning, implementation, fiduciary management, Environment and Social Framework and monitoring and evaluation. The field level arrangements and processes will be described in the Community Operations Manual (COM). The project will also prepare a separate manual to guide the implementation of the activities under COVID-19 Economic Recovery Response component.

(g) **Collaboration with IFAD:** The GoCG is in discussion with IFAD on a project in Northern Chhattisgarh following the overall design of the Bank-funded CHIRAAG project. To ensure alignment of project interventions and development outcomes the GoCG, IFAD and World Bank have reached a common understanding that both projects will be implemented through a single SPMU. Contingent upon GoCG's agreement on the IFAD project, IFAD financing will partially support the SPMU.

⁴² CRCs will have 8-20 members drawn from *Gauthan* Committees, LGs and select community institutions.



B. Results Monitoring and Evaluation Arrangements

59. The monitoring, evaluation and learning system will function both as a decision support system and a social observatory. The objectives of the monitoring, evaluation and learning system include tracking and measurement of inputs, activities and outputs, assessing the processes of implementation, verifying project-related assumptions, evaluating project outcomes and impacts, and assessing achievements against project objectives. The system will include primary stakeholders and involve community-based participatory monitoring and learning. It will facilitate regular management review and adaptation in the form of monthly review meetings and quarterly thematic meetings. An information and communications technology (ICT)-enabled customized management information system (MIS) and geographic information system-based input-output monitoring system will generate monthly progress reports. Baseline survey data will be collected in the first year, midline data in the third year, and end-line data in the sixth year. The series of survey data would be the basis for rigorous project evaluation.

60. The midterm review of the project will be completed by the fourth year of the project. The review will assess progress and re-evaluate the adequacy of the results framework. Under process monitoring, a separate set of rapid assessments will be conducted, focused on monitoring and articulating results under Component 4 activities. These rapid assessments will be conducted during the first 18 to 24 months of the project using baseline and MIS information. An SPMU monitoring, evaluation and learning team will oversee all monitoring, evaluation and learning activities with coordinators at district, block, and community levels, and with the support of a set of TSAs.

C. Sustainability

61. **Technical sustainability** of the project will include but is not limited to human capital development addressing malnutrition, and agriculture (80% of total state farmers are small and marginal). The project design aims for improvements in nutritional security among the poorest, mainly tribal communities, through sustainable and climate resilient production systems with efficient use of natural resources including water, soil, biodiversity and animal husbandry, and development of community institutions to promote value addition and market access. Human capital development areas primarily include nutrition, for increased availability of nutritious food; INRM and in field water management for resilient production systems resulting in drought proof production systems; increased availability of improved inputs and climate smart technologies and improvements in farmer's adaptive capacity for scaling up diversified livelihoods, resulting in increased production of nutritive products; and increases in farm gate prices, volume and value of marketed agricultural output thus ensuring enhanced income, food and nutrition security. The state is also committed to contributing and will support the sustainability of these activities by allocating required resources to keep beneficiaries fully engaged.

62. **Institutional sustainability** will be supported through the mainstreaming and strengthening capacities of various line departments (agriculture, horticulture, veterinary services, fishery) and improving their delivery systems through strengthened MIS and related processes. State infrastructure and capacity will be proactively strengthened for improved service delivery in agriculture and allied sectors. The state government and line departments will be an integral part of all project activities. Project implementation will be anchored within the GoCG departments and agencies, giving them full responsibility for project implementation and management, thereby not only improving public sector service delivery, but also building capacity and experience within departments and agencies, as well as



integrating a culture of directly engaging with farmers and beneficiaries in remote project areas, including LWE-impacted areas.

63. Financial sustainability: The project aims to empower targeted communities and build human capital to: (a) improve capacity to manage natural resources and production systems; (b) acquire new knowledge and skills for nutrition-supportive, resilient production systems; and (c) access profitable markets through aggregation, value addition, skills and knowledge. Project investments in water management infrastructure, scaling and deepening multiple livelihoods, new community institutions (LGs, *gauthan*, CRCs), organizing farmers into FPOs, and improved producer-market links would enhance the financial sustainability of the targeted producer households and instill confidence in potential private sector investors in select sectors (i.e. agriculture, horticulture, livestock and fishery), including International Finance Corporation investee companies. Stakeholder capacity, particularly the capacity of state, district and block level officials of participating departments, will be strengthened, thus ensuring financial sustainability of project activities. The project will benefit from the GoCG and Gol's strong commitment to fostering agriculture development through sustainable growth, food and nutrition security, food safety and focus on nutritive food commodities, household income and shifting focus beyond farming towards postharvest value addition, processing and access to profitable markets.

64. Social and environmental sustainability. Project interventions will promote overall sustainable and efficient utilization of natural resources for optimal productive use and building community resilience against climate shocks. IFS activities (agriculture, horticulture, livestock, fisheries, agroforestry, value addition, and marketing activities) will augment year-round local availability of nutritive foods thus benefitting households in villages including women, tribal, youth, landless, and other vulnerable groups on nutritional and income outcomes. Any minimal environmental or social risk and impact arising from project interventions will be mitigated and managed through measures outlined in the Environment and Social Management Framework (ESMF) and the Environment and Social Commitment Plan (ESCP).

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

65. Project benefits. The main project benefits include: (a) increased/enhanced sources of income for targeted beneficiaries, (b) resilient production systems adapted to climate change; (c) streamlined production input systems; (d) increased availability of nutritious foods; and (e) improved access to local and distant markets. The project design effectively leverages agriculture-nutrition pathways to maximize the potential for improved nutrition outcomes in project areas. Given the state's alarming nutrition challenges and the population's large dependency on agriculture, the sector remains an important platform for impacting the most vulnerable sections of the population and the agents – women caregivers in particular – most crucial for change. Specifically, these benefits will result from: (i) investment in water harvesting structures and irrigation facilities; (ii) nutrition-supportive climate resilient production systems; (iii) adoption of climate smart production technologies and practices; and (iv) improved postharvest management, value-addition and marketing of commodities in profitable distant markets, and improved household diets and availability of nutritious foods. It is expected that substantial employment will be generated due to the increased area under crop production and resulting opportunities for own and on-



farm labor, particularly for the landless poor who are mainly employed in agriculture as wage workers, and increased employment in handling, processing and marketing of incremental production.

66. **Economic viability and sensitivity analysis.** The project's economic internal rate of return (EIRR) over a 20-year period for the base case, excluding benefits from greenhouse gas (GHG) emission reduction, is 23.5% with a net present value of \$72.8 million at a discount rate of 12%. A sensitivity analysis was conducted to assess the impact of changes in main parameters affecting the economic outcome of the project as a result of: (a) changes in project costs; (b) changes in the expected benefits from the production systems promoted by the project (crop, livestock, fisheries and minor forest produce); and (c) delays in project execution due to risks identified in the risk analysis. Results show that the project remains economically viable even within adverse changes in project costs and benefits. A reduction in project benefits by 20% results in an EIRR of 18.2%. A 20% increase in project costs combined with a 20% reduction in project benefits, coupled with a two-year delay of benefits, reduces the EIRR to 10.1%. Further details are provided in Annex 5.

67. **Financial analysis** has been carried out for the main productive activities supported by the project. Detailed crop budgets were prepared for major agricultural and horticultural crops for typical smallholder plot sizes, providing an overview of the production system including key production parameters, farmer organizations, investments and marketing channels. Similar analyses were prepared for livestock production models (goats, pigs and poultry) and fish production systems (small and large ponds). The results show considerable increase in gross margin, net profit, and return to family and total labor for all production systems. The financial analysis suggests that an increase in average real annual household income of targeted households is possible due to diversified or intensified economic activities promoted by the project. Table 4 in Annex 5 shows the estimated incremental annual net income per household, as well as the initial investment costs and the incremental annual costs of intermediate inputs (variable costs) for the main productive activities supported by the project. It is expected that the financial analysis will be periodically updated as an integral part of the project's monitoring and evaluation system, and as an input into the project evaluation at midterm and completion stages.

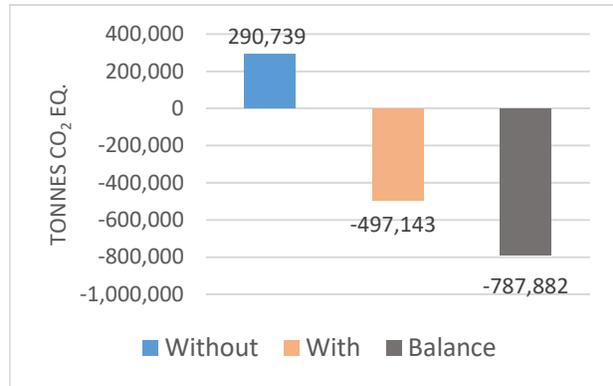
68. **Climate co-benefits.** Chhattisgarh is a critical climate hot spot in India, rendering the project area and targeted communities extremely vulnerable to climate shocks. Project investment areas support accelerated adoption of climate resilient activities, notably an IFS that includes CSA practices (i.e. drought resistant seeds/planting materials, conservation of local biodiversity/germplasm, improved land management practices, energy efficient tillage to prevent top-soil loss, soil health card and soil carbon enhancement with increased use of composting, improved manure management, biogas at community level, reduction in chemical fertilizers/inputs, rain water harvesting and run off management thus preventing soil erosion, energy efficient irrigation, rehabilitation of degraded lands through agro-forestry, orchard development, livestock management with improved feeding practices for reduced methane emission, resource efficient fisheries with low external inputs and improved management practices, and renewable energy-based postharvest/processing/storage to reduce food wastage). The comprehensive range of project activities including intensive community capacity building measures and institutional support, will help strengthen the resilience of about 180,000 smallholder farmer households, and support them to adapt to negative impacts of climate change.



69. As described in the economic and financial analysis, the project contributes to moderately reduce GHG emissions from resource efficient production systems including livestock. However, other climate mitigation co-benefits that are not quantified might reduce GHG emissions, such as reduction in seed and fertilizer use, improved manure management, adoption of CSA practices, increased efficiency in value chain processes (e.g. solar pumps, cold storage); and potential reduced use of fuel for transport in selected value chains. Refer to Annex 6 for more details.

70. **GHG emissions reduction and shadow price of carbon.** The net balance of all GHG (expressed in CO₂-equivalent) that would be emitted or sequestered within the potential project activities was estimated and accounted in the economic analysis using the social price of carbon. The economic and financial analysis uses a low and high estimate of the carbon price starting at \$40 and \$80, respectively, in 2020 and increasing to \$50 and \$100 by 2030. According to the calculations in EX-ACT, the project showed a total reduction over the project lifetime of 787,882 tons of CO₂-equivalent, which means

Graph 1: Total Balance 'without' and 'with' project



that the project will have a positive carbon sequestration balance (Graph 1). Given the moderate GHG emissions reductions, the overall carbon benefit is estimated to range between \$10.7 million in the low shadow price of carbon scenario and \$21.4 million in the high scenario. Incorporation of this relatively small benefit into the economic analysis improves the project EIRR to 25.1% in the low scenario and 26.8% in the high scenario.

B. Fiduciary

Financial Management (FM)

71. FM arrangements reflect lessons learned from the ongoing Chhattisgarh Public Financial Management and Accountability Program (P166578) and other Bank agriculture sector operations in Odisha, Jharkhand, Maharashtra and Andhra Pradesh, and are adapted to CHIRAAG specificities. Project FM arrangements will be mainstreamed into the state’s planning and budgeting processes; and e-Kosh (state’s online treasury management system) and PFMS (GoI’s Public FM System) will be used for allocation of project funds, application of internal checks and controls, accounting and financial reporting and tracking of project unspent bank balances. Several supplemental measures have been agreed to mitigate the identified risk of disbursement lag arising from delays in accounting for expenses incurred at field level. Based on the Bank’s assessment, proposed FM arrangements are acceptable, and provide reasonable assurance that loan proceeds will be used for intended purposes and properly accounted. With agreed supplemental measures in place, the residual FM risk is rated **Moderate**.

72. The supplemental measures agreed include: (a) use of PFMS to provide last mile visibility of bank account balances, fund transfers, and fund utilization across the project; (b) hiring and retention throughout the life of the project, of suitably qualified FM staff at the SPMU and DPMU in the Directorate of Agriculture; (c) agreement on a robust operational framework and protocol for funding of selected sub-



projects and business plans at the community level; and (d) agreement on protocol for sharing of common costs with other financing partners. The Community Operational Manual will provide detailed guidance to field staff on processes of selection of beneficiaries, eligibility criteria, form and content of the business plan, including the funding sources for the productive investments and its operation and maintenance, cost sharing norms, applicable procurement arrangements, fund flow and appraisal/approval work flows. See Annex 3 for detailed FM and disbursement arrangements.

Procurement

73. All goods, works, consulting and non-consulting services financed under the project will be procured in accordance with the World Bank's Procurement Regulations for IPF Borrowers (dated July 2016; revised November 2017 and August 2018), and the provisions of the Financing Agreement. If there is conflict between government decrees, rules, and regulations and Bank Procurement Regulations, the Bank's Procurement Regulations shall prevail. The project will be subject to World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants ("Anti-Corruption Guidelines"), dated October 15, 2006 and revised in January 2011 and as of July 1, 2016.

74. *Implementation arrangements for procurement.* As the nodal agency, the SPMU will have overall responsibility for ensuring procurement compliance and consistency, as per agreed processes and procedures. Moreover, *Beej Nigam*, a wholly owned GoCG unit, will carry out specialized open market procurement for activities identified and prior agreed with the SPMU. The project shall not fund any seeds produced by *Beej Nigam* either on its own or on farmer's fields. SPMU and *Beej Nigam* will be carrying out all project procurement activities, except those to be carried out at district and community levels.

75. The overall Project activities to be carried out under the project are not envisaged to exceed the national competitive bidding (NCB) threshold. A detailed list of key activities at SPMU, DPMU and Community levels shall be included as part of Project Procurement Strategy for Development (PPSD).

76. *Procurement Risk Assessment, mitigation measures and rating:* The assessments of procurement capacity and risk suggest *Beej Nigam* has been largely responsible for most state-funded procurement activities, whereas DoAB has been engaged in some. DoAB and *Beej Nigam* procurement staff do not have experience in handling procurement under Bank procurement regulations. The following potential procurement risks have been identified: (a) absence of procurement planning; (b) limited capacity resulting in delays in procurement and contract management; (c) noncompliance with agreed procurement arrangements; (d) internal delays in decision making due to bureaucratic processes; (e) need for enhanced transparency and robust complaint redressal mechanism; (f) no formally planned procurement reviews being undertaken; and (g) absence of regular oversight mechanism for procurement and contract management aspects. Overall procurement capacity is weak, and considering the geographical spread, highly decentralized nature of the project and complexity of some activities, the overall project risk rating is **High**. Based on discussions with the implementing agencies, measures to mitigate the risks have been identified and the residual risk rating following implementation of mitigation measures is considered **Substantial**. The mitigation measures are further elaborated in Annex 3.

77. *Project Procurement Strategy for Development (PPSD):* DoAB has prepared a PPSD. Past procurement and vast experience regarding most of the proposed activities indicate that the state is familiar with the vendor market which is reflected in the PPSD for all major activities. Based on the agreed cost tables, the



PPSD defines the envisaged activities, estimated cost, method of procurement and Bank review requirements. The document describes how economic, efficient and transparent procurement shall be carried out for smooth execution of the project. The PSD duly captures the market and vendor availability, unique nature of some of the agricultural inputs, need for involvement of specialized government-owned organizations and specialized non-governmental organizations (NGOs), current procurement arrangements, market conditions and limitations.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

78. **ESS1: Assessment and Management of Environment and Social Risks and Impacts.** Per the Environmental and Social Framework, GoCG carried out an Environmental and Social Assessment based on a desk review of relevant documents and stakeholder consultations across three agro-climatic zone to identify and assess the environmental and social risks and impacts related to project interventions. Based on the Environmental and Social Assessment, an ESMF was prepared and disclosed that lays down processes to screen, identify, assess, mitigate and minimize any risk and adverse impact to the community. The ESMF is applicable to all components and outlines the implementation, monitoring and reporting arrangements with capacity building requirements. It contains a negative list of activities that will not be supported under the project. The GoCG’s ESCP, which includes sub-project-specific safeguards documents that will be prepared post-effectiveness, was agreed with the Bank and disclosed. Implementation arrangements include appointment of SPMU Social and Environmental Specialists, and Environmental and Social Officers at district and block levels. Quarterly monitoring reports on ESCP and ESMF implementation will be submitted by the SPMU to the Bank. Environmental and Social Audits will be conducted at the midterm and end of project.

79. **ESS2: Labor and Working Conditions.** Several small-scale contracts will be executed through local contractors using mostly local labor and community workers, therefore the risk of gender-based violence, child/bonded labor, and hazardous work and/or accidents is assessed as low. To address any potential labor risks and impacts, labor management procedures proportional to project risks will be prepared by the Department of Agriculture based on the labor management framework prepared as part of the ESMF. A sub-project specific Labor Management Plan will be prepared prior to the bidding process.

80. **ESS3: Resource Efficiency and Pollution Prevention Management.** Proposed diversification and intensification of production systems could lead to increased pesticide and fertilizer use. To mitigate this risk, preparation of a Pest Management Plan and a Nutrient Management Plan was agreed in the ESCP with a defined timeline, template and budget. The Pest Management Plan and Nutrient Management Plan shall cover capacity building measures and training on integrated pest and nutrient management; safe usage, storage and disposal of pesticides and other agrochemicals. Any pollution and waste generation issues arising from small scale construction activities, pond aquaculture, livestock activities, food



processing and value addition activities will be addressed through a site specific Environmental and Social Management Plan, guidelines and capacity building. GHG emissions estimation and resource efficiency analyses are included as parts of value chain interventions. CSA practices will also be promoted.

81. ESS5: Land Acquisition, Restrictions on Land Use, and Involuntary Resettlement. Project interventions will not require private lands, cause involuntary resettlement or physical relocation. Land parcels with encumbrances will not be considered under the project. Hence ESS 5 is not relevant.

82. ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Around 44% of Chhattisgarh's land area is under forest, with over 625 minor forest produce species (more than 200 species of medicinal, aromatic and dye plants). The project will not support any interventions in production of minor forest produce in critical natural habitats and other reserve forests, thereby eliminating the risk of altering species composition, chance introduction of invasive species and disturbance to ecosystem services. Project interventions will include value addition support for minor forest produce grown outside the forests only (village common lands or *baadi*) by way of small primary processing at the household or community level – grading, sorting and packaging – and linkages to markets to increase the income from this trade. To mitigate any indirect and unintentional adverse impacts, a Biodiversity Management Plan has been agreed in the ESCP with an explicit focus on monitoring the extractions and collections of minor forest produce, both from inside and outside the forests for ensuring that the proposed investments do not lead to increased risk of biodiversity loss through minor forest produce extraction. Project interventions on aquaculture may lead to risk of disease outbreaks or escape of invasive species into the wild, affecting the biodiversity. To address the risks, a guideline on good aquaculture practices and management plan will be developed including implementation, monitoring and capacity building measures. An agreement to this effect has been made in the ESCP with budget and timeline for preparation.

83. ESS7 Indigenous Peoples. During the Environmental and Social Assessment, focused consultations were held with indigenous communities and particularly vulnerable tribal groups. The project will ensure identification, targeting and inclusion of key vulnerable groups in the village planning exercise, beneficiary selection for individual and group assets, formation of beneficiary groups, livelihood support interventions, dedicated consultations and identification of special measures for vulnerable households.

84. Project interventions will not cause any adverse impacts on the lands, livelihoods, resources, and cultural properties of tribal communities. A Tribal Development Framework⁴³ has been prepared that provides for specific measures to ensure socially and culturally compatible project interventions that enjoy broad community support in the tribal villages. A sub-project-specific tribal development plan will be prepared once sub-projects are identified and finalized.

85. ESS8 Cultural Heritage. Project areas are likely to have several pilgrimage sites and places of religious prominence, sacred groves and sacred water sources. The risk of impact on cultural heritage is mitigated through a Chance Find Procedure which has been prepared as part of the ESMF. A Cultural Heritage Management Plan will be developed as part of the site-specific Environmental and Social Impact Assessment/Environmental and Social Management Plan to address any risks or impacts on tangible and

⁴³ Indigenous Peoples Planning Framework (IPPF).



intangible cultural heritage or encounter with previously unknown cultural heritage during the project. An agreement to this effect has been included in the ESCP.

86. **ESS10 Stakeholder Engagement.** As part of the Environmental and Social Assessment, the GoCG Department of Agriculture held stakeholder consultations, focusing on primary stakeholders and main project beneficiaries, including farmers, women's groups, and *GP* leaders, as well as disadvantaged and vulnerable groups, such as marginal farmers, landless households and agricultural laborers, SC and ST households, and particularly vulnerable tribal groups. Special consultations were also held in economically disadvantaged *GPs*, tribal villages, and with elected leaders and officials of the *GPs* and line agencies. The project stakeholder engagement plan includes multiple channels of communication and engagement with project stakeholders throughout the life of the project. The stakeholder engagement plan also includes set up of an accessible and inclusive grievance redress mechanism to be rolled out in project villages.

87. **Gender.** In Chhattisgarh, women are the primary agricultural workers, and play a major role in the collection and processing of food and medicinal plants. Through the Gender Action Plan, women farmers/landowners, workers, women-headed households, and community leaders will be systematically identified and included in the *GP* Resource Management Plans, beneficiary group leadership, training programs, sub-project investment planning, and beneficiary lists. The existing cadre of largely women social mobilizers will be provided additional training to implement dedicated interventions for women and special vulnerable groups. Despite their role in agriculture, women face multiple barriers, which are social and cultural in nature, limiting their access to new practices, technological advancement, market opportunities and taking up leadership positions in the community thereby preventing their access and control of resources. A gender framework has been prepared as a part of Environmental and Social Impact Assessment which specifically tries to address issues at the planning and implementation stage of the project. Concerted effort will be made by DPMUs and BPIUs to engage women in activities in which they feel confident and possess unique capabilities such as livestock management, primary processing and build their capacity in resilient technologies and practices, particularly focusing on reduction of drudgery.

88. **Gender Based Violence (GBV).** As a part of the ESMF preparation process and based on stakeholder consultations and GBV risk assessment tool, the project GBV risk rating is **Low**. The scale of activities and associated impacts are likely to be localized and hence GBV risk mitigation measures are built into the occupational health and safety aspects of labor management and sensitization of communities.

89. To mitigate potential risks related to on-site safety and GBV, the SPMU will: (a) conduct regular sensitization and awareness drives for community laborers, contract laborers (if applicable) and communities on safety, harassment, GBV-related issues, legal recourse procedures and mitigation channels in collaboration with the police and health departments; (b) hire a gender expert; (c) sensitize the SPMU social expert on specific aspects of GBV risk mitigation; (d) strengthen the grievance redress mechanism by establishing multiple channels to initiate a complaint including confidential reporting in the local language with safe and ethical documentation of GBV cases; (e) identify and engage efficiently with community-based organizations and GBV service providers in the project area to ensure a strong support mechanism; and (f) ensure bidding documents include a code of conduct in line with GBV requirements.

90. **Citizen Engagement.** The purpose of citizen engagement is to present and share project information and activities with stakeholders, seek inputs, and build relationships with communities. Citizen engagement will be ensured through community participation in VDP preparation and identification of



beneficiaries. Communities will be engaged through community consultation/focus group discussions and content-specific leaflets and booklets. Consultations with different stakeholders will be maintained throughout the life of the project. These consultations will inform the implementation of key activities i.e., rural *haats* etc. and build stakeholder as needed, with a focus on women stakeholders.

91. **Grievance Redress Mechanism.** An integrated system will be established with a fully staffed Grievance Redressal Cell at the Department of Agriculture, when the sub-project planning process is initiated. Grievances, if any, may be submitted through various media, including in person, in writing to a noted address, e-mail, or through direct calls to a concerned official. The project, apart from a web-based mechanism, will have a three-tier grievance redress mechanism, at BPIU, DPMU and SPMU levels.

GRIEVANCE REDRESS SERVICES

92. Communities and individuals who believe that they are adversely affected by a WBG-supported project may submit complaints to existing project-level grievance redress mechanisms or the WBG's Grievance Redress Service. The Grievance Redress Service ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WBG's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WBG non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's corporate Grievance Redress Service, please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

V. KEY RISKS

93. The overall project risk is assessed as **Substantial**.

94. **Macroeconomic risk is assessed as Moderate.** India's GDP growth has slowed in the past three years, and the COVID-19 outbreak is expected to have a significant impact. On the fiscal side, the deficit is expected to widen significantly in FY20/21, owing to weak activity and revenues, as well as higher spending needs. States also face significant fiscal stress owing to shortfalls in revenue and compensation associated with the Goods and Services Tax, as well as due to limits on borrowing. This being said, residual macroeconomic risks – and specifically risks of insufficient counterpart funding by the state of Chhattisgarh – are low and unlikely to compromise the achievement of the project's development outcomes. This is because: (a) the counterpart funding requirement (\$42.6 million) is modest as a share of state expenditures; and (b) the project directly supports growth and job generation in a critical sector.

95. **Sector strategy and policy-related risks are rated Moderate.** The main project risk from ongoing policy initiatives relates to potential changes to data privacy and protection. Activities directly or indirectly supported by this project collect personal data, i.e. name, age, ID number, gender, cell phone number, which could be used to identify an individual. Statistical data collection is governed by the *Data Collection*



Act of 2008, GoI which contains provisions to guarantee respondents confidentiality. A Personal Data Protection Bill is currently under preparation.⁴⁴ The implications of the Bill are not clear yet, and should it be approved, the Bank and DoAB will conduct a technical analysis of the potential impact of the effectiveness of the Bill on project design and discuss any modifications that may be needed.

96. Technical design risks are rated Substantial. The key risks are: (a) lack of experience in promoting nutrition-supportive agriculture, diversified and resilient farming and value chain development through decentralized mechanisms of bottom-up planning, working through community institutions, particularly in the remote, tribal-dominated areas in southern Chhattisgarh that include LWE-affected areas. Managing CHIRAAG efficiently and successfully will require strong institutional ownership and leadership from the state government, chiefly DoAB. Key technical design measures to mitigate institutional capacity risks are engagement of suitably experienced human resources from within and outside government, technical and operational capacity development for key line departments, TSA implementation support, and regular capacity building programs for state, district and block level teams. Improving service delivery of agriculture departments through the leveraging of ICT, results monitoring systems, online MIS with spatial/geographic information system mapping, beneficiary tracking portal, etc. will also be undertaken. Further, appointment of a senior bureaucrat as Project Director and an experienced Chief Operating Officer, will be key project success factors. For value chain development, as private sector engagement may be low and not immediate in remote areas, a technical support agency will be hired to support a state level value chain development cell.

97. Institutional capacity for implementation and sustainability-related risks are rated Substantial. GoCG's overall commitment to CHIRAAG continues to remain high as evidenced by state level Project Finance and Implementation Committee clearance. The renewed focus on agriculture through the recently launched *Nyay Yojana* and NGGB policy, is reflective of the overall priorities of the state government's agenda for inclusive rural growth, poverty reduction and rural and agricultural transformation. However, the risk to institutional capacity for implementation and sustainability is substantial, due to lack of DoAB prior experience in the implementation of a multilateral institution-funded project; and no proven institutional capacity to manage and coordinate multiple implementation agencies and project units. As indicated in the remedial measures for technical design, capacity will be built at state, district and block levels, and these teams will work with a range of experienced partners for delivery of timebound outputs; and manage delivery of project outputs.

98. Fiduciary risks are assessed as Substantial. The state's PFMS⁴⁵ will be used to the extent feasible. This being the state's first Bank-financed project in nearly a decade, many government departments and agencies are not familiar with Bank procurement norms and principles, framework and guidelines. The complexities of dispersed fund flows and implementation arrangements across multiple levels pose significant fiduciary risk of diluted accountability systems, which may result in less than reasonable assurance that Bank financing will be used for the intended purpose with economy and efficiency. Detailed

⁴⁴ <https://www.meity.gov.in/data-protection-framework>

⁴⁵ In 2004, GoCG launched the e-Kosh system to automate treasury activities, budget allocation, bill preparation, submission and centralized processing. Other modules including receipts, payroll, pension and e-payments have been added over time. A fully online e-Kosh "Cyber Treasury" was launched on April 1, 2017. The system facilitates e-budget allocation and distribution, e-bill preparation and submission by all 5,157 Drawing and Disbursing Officers across 28 treasuries and 40 sub-treasuries, and centralized bill processing and accounting.



financial and procurement assessments, design of sustainable fiduciary arrangements and training/handholding during the early stages of project implementation will mitigate the risk.

99. **Environment risk is assessed as Moderate.** Project activities are expected to have minimal and no adverse or irreversible environmental impacts and can be mitigated and managed through the measures outlined in the ESMF. The GoCG's ESMF and ESCP are in alignment with the Bank's Environment and Social Framework which outlines measures for mitigating minimal environmental risk and impact, institutional strengthening and capacity building, and monitoring and reporting mechanisms for the successful environmental management of project interventions.

100. **Socio-cultural risk is rated Moderate.** Project interventions are largely focused around tribal-dominated areas in southern Chhattisgarh that include LWE-affected areas. Planned project interventions are expected to benefit the local Indigenous population and not likely to have any negative impact. However, to prevent exclusion, an IPF has been prepared in line with the Bank ESS 7. Participatory tools will be used to implement various interventions, and consultations with different tribal groups and their leaders will seek inputs during the implementation process. The stakeholder engagement plan (ESS 10), details the consultation plan with different stakeholders throughout the life of the project.

101. **Stakeholder risk is rated Substantial.** Private sector engagement may be low and not immediate, given that the project will be implemented in remote areas, including LWE-affected areas. The project design incorporates several elements that respond to the socioeconomic and political economy context of tribal and LWE areas. Apart from these elements, it will leverage the longstanding presence, outreach and local credibility of NGOs and civil society organizations among communities, and other stakeholders as an important risk mitigation strategy. An LWE sensitization program will be delivered to all staff, partners and communities.



VI. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: India

Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project

Project Development Objectives(s)

The PDO of the proposed project is to improve income opportunities and the availability of nutritious foods in targeted households of Chhattisgarh's tribal-dominated areas.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
To intensify and diversify sources of income, and improve the availability of nutritious foods								
Beneficiary households with intensified and diversified sources of income (Number)		0.00	0.00	3,600.00	22,500.00	48,000.00	75,000.00	108,000.00
Of which, SCs and STs (Percentage)		0.00	40.00	50.00	60.00	60.00	60.00	60.00
Beneficiary households with increased number of food groups available (Number)		0.00	0.00	3,600.00	22,500.00	48,000.00	75,000.00	108,000.00
Of which, SCs and STs (Percentage)		0.00						60.00
Farmers reached with agricultural assets or		0.00	4,020.00	31,920.00	99,600.00	159,600.00	199,200.00	240,000.00



Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
services (CRI, Number)								
Farmers reached with agricultural assets or services - Female (CRI, Number)		0.00	201.00	4,788.00	34,860.00	63,840.00	99,600.00	120,000.00
Of which, SCs and STs (Number)		0.00	900.00	9,600.00	37,500.00	72,000.00	105,000.00	126,000.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Community Empowerment and Institutional Strengthening								
Village development plans (Number)		0.00	150.00	500.00	1,000.00	1,000.00	1,000.00	1,000.00
Beneficiary LGs with at least 50% membership from SC/ST households (Number)		0.00	66.00	150.00	500.00	1,000.00	1,000.00	1,000.00
Beneficiary LGs with at least 25% women members (Number)		0.00	33.00	90.00	350.00	800.00	900.00	1,000.00
IFS operationalized and including nutrition-related SBCC sessions (Percentage)		0.00	0.00	20.00	30.00	50.00	75.00	85.00
Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems								
Beneficiary households supported with sustainable		0.00	300.00	10,275.00	21,375.00	22,050.00	22,050.00	22,050.00



Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
water management and soil improvement practices (Number)								
Increase in beneficiary household land area of more nutritious crops under production (Percentage)	0.00		10.00	10.00	20.00	20.00	30.00	30.00
Beneficiary individuals which have adopted resilient and improved technologies and practices (Number)	0.00		0.00	6,750.00	36,900.00	57,600.00	81,000.00	90,000.00
Of which, women beneficiaries (Number)	0.00		0.00	1,013.00	7,380.00	14,400.00	24,300.00	27,000.00
Beneficiary households adopting at least two IFS activities (Percentage)	0.00		0.00	10.00	15.00	20.00	25.00	30.00
Beneficiary individuals with improved baadis or backyard garden production (Number)	0.00		2,700.00	22,500.00	73,800.00	144,000.00	144,000.00	144,000.00
Of which, women beneficiaries (Number)	0.00		810.00	9,000.00	36,900.00	86,400.00	86,400.00	86,400.00
Value Addition and Market Access								
Common service centers supported with value addition and processing infrastructure (Number)	0.00		53.00	175.00	350.00	350.00	350.00	350.00
FPOs established under the project considered functional. (Number)	0.00		1.00	6.00	17.00	25.00	28.00	28.00



Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
FPOs engaged in aggregation, grading, and/or primary processing (Number)		0.00	0.00	0.00	6.00	11.00	14.00	14.00
Market linkage partnerships established (Number)		0.00	1.00	4.00	4.00	5.00	10.00	10.00
Project Management, Monitoring and Knowledge								
Partnerships with knowledge organizations (Number)		0.00	1.00	2.00	3.00	3.00	3.00	3.00
Project-related grievances registered and resolved (Percentage)		0.00	100.00	100.00	100.00	100.00	100.00	100.00
Decision Support System for Agriculture Department established (Yes/No)		No	No	Yes	Yes	Yes	Yes	Yes
Policy note developed on promoting and financing FPOs (Yes/No)		No	No	No	Yes	Yes	Yes	Yes

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Beneficiary households with intensified and diversified sources of income	See PAD, Footnote 41.	Every six months	MIS, field visits, baseline,	Reports, field visits, desk reviews, meetings	SPMU



			end-line survey		
Of which, SCs and STs		every six months	MIS, field visits, baseline, end-line surveys	Reports, desk reviews, field visits, beneficiary meetings	SPMU
Beneficiary households with increased number of food groups available	Food items are categorized based on the 12 HDDS food groups. The number of food groups available (produced or purchased) has increased if the diversity of available foods has risen by at least one food group.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk review, beneficiary meetings	SPMU
Of which, SCs and STs		Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk reviews, beneficiary meetings	SPMU
Farmers reached with agricultural assets or services	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes:	Every six months	MIS, field visits, baseline, end-line survey	Reports, field visits, desk reviews, meetings	SPMU



	<p>crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural</p>				
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	activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.				
Farmers reached with agricultural assets or services - Female		Every six months	MIS, field visits, baseline, end-line survey	Reports, field visits, desk reviews, meetings	SPMU
Of which, SCs and STs					

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Village development plans	Number of village development plans approved and financed.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk reviews, beneficiary meetings	SPMU
Beneficiary LGs with at least 50% membership from SC/ST households	Project-supported LGs have at least 50% membership consisting of SC/ST.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk review, beneficiary meetings	SPMU



Beneficiary LGs with at least 25% women members	Number of project-supported LGs with at least 25% women members.	Every six months	MIS, field visits, baseline, end-line survey	Reports, field visits, desk reviews, meetings	SPMU
IFS operationalized and including nutrition-related SBCC sessions	IFS' set up and operational, with nutrition-related SBCC sessions on diet diversity, maternal, infant and young child feeding, traditional recipes, maternal and child health and WASH. IFS use master trainers to conduct sessions for all households with farmers and vulnerable groups.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk review, beneficiary meetings	SPMU
Beneficiary households supported with sustainable water management and soil improvement practices	Number of beneficiary households supported with sustainable water management and soil improvement practices.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk reviews, beneficiary meetings	SPMU
Increase in beneficiary household land area of more nutritious crops under production	Average increase in land area under production of more nutritious non-paddy crops, with separate measure for increase in land area for millets, pulses, fruits, and vegetables (underground vegetables	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk reviews, beneficiary meetings	SPMU



	and trellis vegetables). This captures increases at extensive margin (households not devoting land to a certain crop) and intensive margin (households which increased land devoted to a certain crop). Average across seasons in a year will be measured for each household.				
Beneficiary individuals which have adopted resilient and improved technologies and practices	New technologies and practices derived from various project-provided training, e.g. INRM, IFS, climate smart agriculture, nutrition, integrated nutrient and pest management, crop specific package of practices, and other extension services.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk reviews, beneficiary meetings	SPMU
Of which, women beneficiaries					
Beneficiary households adopting at least two IFS activities	IFS means at least two of: agriculture (field crop production in kharif and rabi season), horticulture (vegetable production in baadis for at least 7 months), livestock rearing (at least one type),	Every six months	MIS, field visits, baseline, end-line	Reports, desk review, beneficiary meetings	SPMU



	aquaculture (at least 6 months in ponds/hapas), or agroforestry (at least 2 types of trees planted).				
Beneficiary individuals with improved baadis or backyard garden production	Improved baadis means use of better quality inputs, adoption of improved package of practices and implementation of year-round production (at least 8 months/year).	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk review, beneficiary meetings	SPMU
Of which, women beneficiaries					
Common service centers supported with value addition and processing infrastructure	Common service centers receiving infrastructure investments for primary processing, postharvest handling and marketing.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk reviews, beneficiary meetings	SPMU
FPOs established under the project considered functional.	FPOs established with business plans and financing.	Every six months	MIS, field visits, beneficiary meetings	MIS, reports, desk review	SPMU
FPOs engaged in aggregation, grading, and/or primary processing	Project-supported FPOs directly engaged in aggregation, grading, and/or primary processing activities.	Every six months	MIS, field visits, baseline, end-line surveys	Reports, desk review, beneficiary meetings	SPMU
Market linkage partnerships established	Partnerships, for inputs and outputs, between project-	Every six months	MIS, field visits,	Reports, desk review, beneficiary meetings	SPMU



	supported FPOs/LGs and value chain actors through MoUs, direct partnerships, or linkages formed.		baseline, end line surveys		
Partnerships with knowledge organizations	Through MoUs between SPMU and knowledge organizations.	Every six months	MIS, field visits, SPMU meetings	MIS, meetings with SPMU/knowledge organizations, reports	SPMU
Project-related grievances registered and resolved	Target beneficiaries have confidence in project transparency and accountability mechanisms that grievances will be addressed (complaints received vs. resolved).	Every six months	MIS, field visits, baseline, end-line surveys	Reports, meetings, SPMU/DPMU/BPIU beneficiary stakeholder consultations, MIS reports, inputs from web-based mechanism.	SPMU
Decision Support System for Agriculture Department established	Decision support system for Agriculture Department set up and rolled out to users.	Monthly for first 12 months	SPMU, missions	In-house meetings, missions	SPMU
Policy note developed on promoting and financing FPOs	Policy note developed on FPO promotion and financing.	Every six months	MIS, missions, working w/ ministries	SPMU updates	SPMU



ANNEX 1: Detailed Project Description

Component 1: Community Empowerment and Institutional Strengthening (\$14.9 million)

1. This component will build household and community capacity to: (a) plan, implement, and monitor development investments; (b) promote and strengthen community institutions for effective management of natural resources, productive infrastructure and private assets; and (c) undertake nutrition-sensitive agriculture, adopt dietary diversity and promote positive nutrition practices at household level.

2. **Subcomponent 1.1 Participatory Village Planning and Community Institution Building (\$12.3 million)** will support: (a) project awareness of targeted communities; (b) preparation of participatory, integrated VDPs including climate resilient activities; and (c) formation and/or capacity building of key community institutions to participate in project planning, implementation and monitoring of investment activities.

3. Participatory Village Planning. Project awareness will be created through social mobilization, information, education and communication (IEC) material development and village entry activities. The social mobilization and participatory planning process will be led by communities, supported by TSAs, Krishi Vigyan Kendra (KVK),⁴⁶ recruited community cadres and block level project teams. Household, village (community) and GP⁴⁷ (*gauthan*) level investments will be identified and prioritized through a village level planning process by a specialized TSA, using participatory rural appraisal exercises. Village level assessment will be undertaken to identify and prioritize nutrition interventions. The planning process will be informed by Indira Gandhi Krishi Vishwavidyalaya (IGKV's)⁴⁸ regional diagnostics, and landscape maps and satellite imagery accessed from the Department of Science and Technology. VDPs will include investments and activities at three levels, namely: (i) *gauthan*; (ii) village; and (iii) individual household. Plans will be consolidated at block and district levels, and then at SPMU level to inform physical and financial annual planning, and related Directorates to ensure timely mobilization of resources through convergence.

4. Community Institutional Strengthening. Formation and/or capacity building of key community institutions will be undertaken to: (a) enable participation in planning and implementation; and (b) prepare project investment plans for community and household benefits. At the village level, a multi-commodity LG will be formed as the key community institution to anchor project processes, interventions and investments. All interested households within a village may seek LG membership based on aspirations and motivation to strengthen their respective livelihood. Each LG will have an executive committee, with women adequately represented, that will be responsible for day to day coordination of activities. Considering the PESA Act,⁴⁹ the project will strengthen community institutions to not only comply with the Act's provisions, but also make them more participatory, inclusive, sensitive to local culture, practices and resources. Tribal women face intersectionality of barriers and have negligible individual or collective agency to participate effectively in decision-making processes. Through increased awareness and capacity building initiatives, the project will include more women in LGs and facilitate their active role, largely

⁴⁶ KVKs are local agriculture extension agencies functioning under agriculture universities or promoted by non-governmental organizations.

⁴⁷ A GP is the grassroots-level of governance system in India at the village-level or a group of small villages, and has a *Sarpanch* as its elected head. As part of NGGB policy under *Surajji Gaon Yojana*, the GoCG, together with the GP, establishes cattle daycare centers at GP level called *gauthans*.

⁴⁸ Indira Gandhi Krishi Vishwavidyalaya is the local agriculture university.

⁴⁹ The Act prescribes that the *Gram Sabha* or GPs at the appropriate level be consulted on project activities, particularly for planning and management of minor water bodies, minor forest produce and village markets. <https://tribal.nic.in/actRules/PESA.pdf>



tribal, in LG governance and management. Each LG will have smaller, informally organized, hamlet-level sub-groups for purposes of commodity-focused activities. Existing community institutions, such as village organizations, SHGs, producer groups, Joint Forest Management Committee, etc., based on their current performance and motivation may be included within LGs.

5. At the *GP* level, the project will work with *Gauthan* Committees to strengthen their operational viability and improve governance. Further, the project will form CRCs – informal bodies comprising 8-20 representatives drawn from community institutions of nearby villages in the catchment of existing *gauthans* – with the objective of supporting *Gauthan* Committees. CRCs will plan CHIRAAG investments at the *GP* level, in consultation with *Gauthan* Committees, and also ensure smooth convergence. In collaboration with KVKs, TSAs will build management capacity of CRC members. Training modules will be prepared to build the voice and agency of women CRC members, and capacity of female representatives will be built in resource management, actions for climate change adaptation, nutrition and other required technical skills such as planning, procurement, market access etc., so that they can perform at par with other members. The TSA will leverage ICT and conventional communication mechanisms for capacity development and institution building of *Gauthan* Committees and CRCs. Community resource persons will be hired and retained as a spearhead team.⁵⁰ The spearhead team’s capacity will be built on the project’s technical approaches through regular training and exposure visits.

6. The intersection between gender and ethnicity means that tribal women often face multiple disadvantages. The village planning exercise will engage with existing women’s federations (village organizations/SHGs) and LGs to understand barriers faced by women producers and workers in tribal areas. The project will undertake a focused review in sample districts (with large tribal population) to understand barriers experienced by women, especially tribal. Based on the findings, the TSA hired for VDP preparation and facilitation will work with women to: (a) identify and address access gaps in agriculture assets and services; (b) integrate findings of the review in planning and delivery of services for improving outreach to tribal women; (c) strengthen the capacity of state offices to incorporate gender in the planning and delivery of services; and (d) positively target tribal women’s participation in the decision-making processes of existing community-based institutions. The TSA will also provide handholding support to build tribal women representatives’ decision-making and resource management capacities in community-based institutions. Key investments for all sub-component are detailed in Section II, Part B.

7. Key activities under sub-component 1.1 are: (a) generation of project awareness among targeted communities through village entry activities; (b) hiring of IGKV⁵¹ to support regional diagnostics; (c) hiring of TSAs for VDP preparation and facilitation, planning and implementation support for INRM activities, nutrition intervention plans, institution strengthening, and capacity building support to *Gauthan* Committees,⁵² LGs, CRCs and select existing community institutions;⁵³ (d) training and exposure visits of producers, community cadre for VDP; and (e) recruitment, training and operational costs of block level manager, community coordinator and marketing and value chain coordinator.

⁵⁰ There will be one Spearhead team for every 3 *GPs* (~8 villages), comprising 24 community resource persons (8 farm resource persons, 8 livestock resource persons and 8 nutrition resource persons) and 1 bookkeeper for every CRC.

⁵¹ The local Agriculture University at Raipur, Chhattisgarh (<http://www.igau.edu.in/>)

⁵² A 13-member Committee responsible for the *gauthan*’s overall management, governance and administration in the *GP* comprised of a President chosen by the *Gram Sabha* (not necessarily Sarpanch), 5 village youth, a cowherd (*Charwaha*), representatives from *Panchayat* Wards, village SHGs, village Community Resource Persons, *Sarpanch*, Secretary and Rural Agriculture/Horticulture Extension officers. *Sarpanch* is the elected *GP* head.

⁵³ Village organizations, self-help groups, Joint Forest Management Committee, Producer Groups (PGs)



8. Sub-component 1.2 Household Food Availability and Nutrition Practices (\$2.6 million). Women's empowerment (including women's control of economic resources) is linked closely to household nutritional status and can result in decreased malnutrition.⁵⁴ Beneficiary communities and households, with a special focus on women as change agents, will be targeted to plan and consume diverse, locally available and nutritious foods in their households. Support will be provided to women and adolescent girls in the adoption of positive nutrition and related practices, including their engagement in improved and diversified baadi⁵⁵ supplying year-round nutritive food, thereby leading to improved nutrition outcomes of women and children.

9. Social and Behavior Change Communication (SBCC). A SBCC program will be designed and implemented to increase knowledge and influence the adoption of recommended maternal infant and young child feeding, and water, sanitation and hygiene (WASH) behaviors and practices. The SBCC strategy will focus on adolescent girls and young women to adopt sanitation practices and the benefits of improved nutrition through interactive messaging, kitchen garden demonstrations and regular meetings/ monitoring at the village level through *Gauthan* Committees. IFS Schools⁵⁶ and demonstrations will serve as platforms for information sharing and promotion of nutrition-related practices among women beneficiaries. IEC products, toolkits and campaigns on nutrition-supportive agriculture, nutrition diversity, critical nutrition practices and WASH behaviors will be designed to effectively reach tribal women. Leveraging good practice examples from other states,⁵⁷ the component will support deployment of a cadre of women nutrition facilitators (*Poshan Sakhi*)⁵⁸ to support social mobilization, household dietary diversity and adoption of positive nutrition practices.

10. Key activities under sub-component 1.2 include: (a) hiring of TSAs for nutrition SBCC; (b) technical assistance and implementation support for formative research, development of SBCC content and village-level material including SBCC toolkit for facilitation, training manuals and IEC material (flipbooks, posters, films and community-led videos); (c) nutrition training support for SBCC rollout; (d) recruitment and capacity building of *Poshan Sakhi*⁵⁹ including honorarium; and (e) material and equipment for need-based initiatives to empower communities to identify and manage their malnourished children, undertaken in coordination with Department of Women and Child Development frontline workers.

Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems (\$48.5 million)

11. Different from other population segments, tribal livelihoods, notably in remote, forest-fringe areas, continue to be subsistence-orientated with high dependence on natural resources. Key natural resources i.e., soil and water, will be assessed and sustainably developed to lay a solid foundation to develop more diversified food and agriculture systems, nutritive and productive, and more resilient to climate change.

⁵⁴ IFPRI Discussion Paper 01681, October 2017 'Nutrition-Sensitive Agriculture: What Have We Learned and Where Do We Go from Here?' by Marie T. Ruel Agnes et.al., Poverty, Health and Nutrition Division

⁵⁵ 'Baadi' as climate resilient 'gardens' adjacent to the house that follow reduced chemical input use and sustainable biodiverse farming practices promoted under component 2.

⁵⁶ IFS schools will include specially designed nutrition curriculum

⁵⁷ Several states in India have a functional *Poshan Sakhi/Poshan Mitra* cadre

⁵⁸ *Poshan Sakhi* are dedicated nutrition facilitators responsible for conducting sessions at NFSs. An essential element of good quality NFS programs is facilitator training to support the NFS process. NFS Master Trainers prepare facilitators in season long field-based programs, complementing practice with theory. Facilitators typically include non-governmental organizations, extension workers and self-help group women, with preference for training local women farmers as facilitators. This approach is being used in other states (e.g. Bihar), with demonstrated impacts.

⁵⁹ Women Nutrition Facilitators.



12. **Sub-component 2.1: Community-Based Natural Resource Management (\$19.6 million)** will support development and sustainable utilization and management of key natural resources (water and soil) using traditional local knowledge, community-based management systems and modern technologies.

13. Sustainable Soil and Water Management. The project will build on the state's policy on managing surface water (*Narua*),⁶⁰ by reviving, conserving and harvesting surface water through contextual technologies. Directorate of Agriculture's Soil and Water Conservation Unit, with TSA support, will adopt a community-based approach in planning/designing the soil and water conservation works and lead the implementation of these activities. To identify intervention sites, landscape maps at block level (~5,000 ha/33 km²) will be accessed from the Department of Science Technology, GoCG.

14. Water management for Crop Intensification and Integrated Farming. To increase access to water for supplemental irrigation, thereby intensifying and diversifying agriculture production systems, investments will be made in small water lifting devices, including those based on renewable energy (solar pumps, treadle pumps etc.) and water conveyance (i.e. lay flat pipes). Following agriculture conservation principles, energy efficient irrigation technologies i.e. gravity on-line drip irrigation, rain gun/sprinklers etc. will be promoted. Per the VDP, community-based energy efficient small irrigation systems⁶¹ will be promoted for community orchards, agroforestry, small scale fishery and livestock-rearing activities.

15. Enhanced Soil Health. To improve soil health, the state policies of *Ghurwa*⁶² and *GoDhan Nyay Yojana* will be supported and strengthened through scientific measures for soil health testing and soil nutrition measures that increase soil carbon, through increased availability and use of organic manure. The project will strengthen the Soil and Water Conservation Unit's institutional capacity for soil analysis and promote and/or strengthen distribution of soil health cards to beneficiary farmers. Accelerated adoption of locally appropriate integrated soil/crop nutrition management systems⁶³ will be done through demonstrations and training by KVKs. KVK capacity will be strengthened for increasing local availability of key bio-inoculants, bio-fertilizers etc. *Gauthan* capacity to increase the supply of improved compost⁶⁴ and organic manure to communities will be developed with infrastructure support under sub-component 2.2.

16. Key activities under sub-component 2.1 include: (a) investments in INRM, both land quality enhancement and rain-water harvesting activities; (b) investments in energy efficient water lifting and farm level irrigation; (c) investing in design and delivery of soil health cards and soil nutrition management technology demonstrations, mainly in the form of partial grants to develop NADEP⁶⁵ pits and vermi-compost units, and farmer training for increased soil-carbon sequestration and reduced on-farm GHG emissions.

17. **Subcomponent 2.2: Integrated Food and Nutrition-Supportive Agriculture (U\$28.9 million)**. Towards building a well-diversified, resilient and nutrition-supportive food and agriculture system, the project will finance interventions for developing Integrated Farming Systems (IFS), supporting

⁶⁰ *Narua*, as part of GoCG's NGGB policy aims to revive and conserve the surface water flowing through small rivulets, springs etc. by creating small structures and other measures to divert it for productive use.

⁶¹ Such as community-managed farm ponds/irrigation, integrated orchard model etc. introduced in the Bank-assisted Accelerated Development of Minor Irrigation Project in West Bengal, India.

⁶² *Ghurwa*, as part of the GoCG's NGGB policy, aims to suitably use 'cow dung' and manure for improving soil health.

⁶³ Farmyard Manure, improved NADEP compost, vermi-compost, vermi-wash, liquid manure, bio-inoculants, biofertilizers, green manure, crop rotation with legume etc.

⁶⁴ Vermi-compost, NADEP, vermi-wash, liquid manure, heap compost, farmyard manure etc.

⁶⁵ NADEP is a special bio-digester method of making improved compost.



infrastructure and district and state capacity to deliver essential inputs.. IFS will not only meet the input⁶⁶ requirements of various systems (crop/soil, animal, fish), but also de-risk climate shocks through broadened and interlinked local production systems across agriculture, horticulture, fishery and livestock.

18. Integrated Farming Systems (IFS). The primary objective of the IFS will be to address severe malnutrition challenges in project areas. Local production, availability and accessibility of nutritive foods will be augmented through IFS. The project will develop and scale up production systems, such as:

- (a) Food production in *baadi*; community orchards; cropping system focusing legumes, millets, root crops etc.; animal raising, especially small ruminants, backyard poultry, piggery dairy, fishery; and agroforestry. These bio-diverse farms, including introduction of biofortified varieties with higher levels of micronutrients, will supply year-round nutritive foods to households.⁶⁷ Based on prefixed criteria,⁶⁸ a basket of activity options, including climate resilient options, will be drawn from agriculture, horticulture, apiculture, livestock, fishery, agro-forestry, sericulture, etc. during the village planning process. Local KVKs will facilitate community pilots for the production of nutritive underutilized commodities. Households will be encouraged to choose at least two activities for scaling with CHIRAAG support. IFS will be implemented in *baadi*, open fields including Forest Rights Act lands and village common lands. Systematic scaling and deepening of multiple livelihoods will support year-round availability of community-preferred food baskets (millets, pulses, fruits, nuts, vegetables, edible roots/corms/rhizomes, honey, fish etc.) for households; and with potential for generating substantial surplus for local and distant markets.
- (b) Biodiversity and Agroforestry. Livelihoods of forest collectors are challenged by drudgery, low market return and climate change vulnerability.⁶⁹ Sustainable management and use of agro-ecological biodiversity will be a key approach for promoting household nutrition security and higher incomes. The project will promote sustainable conservation and utilization of local agro-forest biodiversity by investing in community awareness and capacity, documentation of indigenous knowledge, and developing locally aligned agro-forestry models,⁷⁰ climate smart technologies, varieties and practices. Local KVKs and IGKV, duly supported by other TSAs, will promote community action for agroforestry, biodiversity conservation and community infrastructure, such as village seed banks.
- (c) Technology Demonstrations and Technical Trainings. Following the Food and Agriculture Organization's farmer field school approach, IFS Schools will be designed and established to train producers on INRM, nutrition, horticulture, livestock, fisheries, integrated pest management, soil health, organic agriculture and CSA. The IFS schools will include support to lead farmers, on-farm technology demonstrations (all sectors), exposure visits and measures for farmer to farmer extension. Specialized agencies like IGKV⁷¹ will: (a) coordinate the participation of local agriculture universities and associated KVKs in designing the activities; (b) prepare multimedia training tools,

⁶⁶ IFS use some outputs (e.g. by-products) and services of one production component as input to another within the farm unit. FAO.

⁶⁷ In partnership with the local agriculture university which has developed biofortified varieties for a few commodities e.g. sweet potato.

⁶⁸ Local agro-climatic suitability, potential year-round dietary diversity, community preference, existing production scale and market demand

⁶⁹ Chhattisgarh is the climate hot spot in India. Livelihoods of forest collection dependent households remain highly vulnerable. <https://openknowledge.worldbank.org/handle/10986/28723>

⁷⁰ *Successful Agroforestry Models for Different Agro-Ecological Regions in India*, Handa, A.K. et. al., 2019.

⁷¹ IGKV is the single largest agriculture university with a robust technical resource base for agriculture extension, research and teaching in Chhattisgarh and therefore chosen as a strategic partner. IGKV has a vast network of KVKs working with communities on capacity building, local project management, monitoring and promoting new innovative agricultural and nutrition approaches. IGKV will play a central role in the project as 'a knowledge organization' for training, capacity building, technology demonstration and knowledge documentation.



guidelines, manuals, and ICT-based IEC material; and (c) coordinate training of trainers for community resource persons, agri-extension officers and piloting of IFS schools. Partnerships with national/global knowledge agencies, will support access to the latest approaches for technology adoption. Interventions under this component will improve women's access to technology through the development of small-scale, mobile, demonstration-sites specifically for women farmers and farm workers.

19. Support to LGs. LGs will be supported with grants to establish a revolving fund from which individual or group member producers, as determined by the LG, will obtain small loans to create productive assets at the household level in sync with the local IFS model. The loan and other seed capital grants, channeled through LGs will support lead producers/producer groups with higher level input production units i.e. nursery, composting, hatchery, fodder/feed production units etc. for onward supply of inputs to households at cost.

20. Community infrastructure: The *gauthans*⁷² at the *GP* level, will play a central role to improve livestock management practices in line with one health aspects. To drive resource-efficient production activities and enhance cropping intensity,⁷³ the evolution of *gauthan* as a common service center for *GP* households will be piloted in project blocks. Investment through grants and technical support in building essential community infrastructure at *gauthans* will be in line with VDPs.⁷⁴ *Gauthan* Committee capacity, currently focused primarily on livestock-related activities, will be strengthened on the related technical assistance of their choice.

21. Strengthening State Capacity to Deliver Services in Tribal Areas. The project will support the upgrading of key infrastructure and capacity of agriculture, horticulture, livestock, fishery and sericulture departments, KVVKs and other local agencies for continued supply of essential production inputs to project beneficiaries and others, especially seeds, saplings, planting material, soil health cards, improved breeds, artificial insemination kits, livestock management for reduced methane emission etc. The state's capacity to engage in diagnosis, surveillance and response mechanisms for emerging infectious zoonotic diseases related to livestock will be assessed and related 'one health' response measures will be supported through technical assistance. The project will invest in strengthening seed production capacity, with the objective of maintenance and multiplication of native seed varieties of rice, millets, leafy vegetables and biofortified material. This will boost the local production of nutrient rich millets and leafy vegetables. The project will work with: (a) IGKV for maintenance and production of early generation materials; and (b) the Directorates of Agriculture and Horticulture for multiplication and production of certified seeds. Select FPOs will be supported with common infrastructure for seed production, processing and marketing.

22. Key activities under sub-component 2.2 are: (a) **Household IFS production systems**: (i) grant support to LGs and other eligible community institutions through a 'revolving fund' to finance household level investments in productive assets and adoption of climate smart technologies and practices, as per VDPs; and (ii) support for gravity drip irrigation and fencing for *baadi* and orchards ; (b) **Community capacity and infrastructure**: (i) training of Community Resources Persons and honorarium; (ii) producer

⁷² *Gauthans* are part of GoCG's NGGB policy and are meant to be cattle daycare centers. Under CHIRAAG, these *gauthans* will be developed into community service centers.

⁷³ Stray animals prevent cultivation of open field crops during winter (*rabi*) season. Management of cattle at *gauthans* will likely pave the way for improved crop intensity, particularly for pulses and millets.

⁷⁴ Activities such as largescale compost manufacturing, bio-fertilizer, agroforestry/horticulture nursery, community seed bank, mechanization center, storage, primary processing units etc.



training and capacity building; (iii) demonstrations of IFS and crop-specific models; (iv) inputs for individual and community *baadi*, backyard poultry, fishery and small ruminants; (v) support for village-level input production (goat, pig breeding units, community nurseries, poultry mother units, etc.) and animal trais/crates for artificial insemination; (vi) *gauthan*-level support for community infrastructure⁷⁵ to improve livestock feeding, manure management, storage, energy efficient tillage and farm operations through custom hiring, and energy efficient common service centers for processing; and (vii) support for fishery development; (c) **District/sub-district level capabilities:** (i) strengthening capacity of KVKs and government departments/agencies to establish horticulture nurseries, and upgrade department nurseries and brood hatcheries; and (ii) technical support for agro-forestry and biodiversity conservation, using local seeds and planting materials from village seed banks and drought-tolerant seeds to enable climate smart and energy efficient production systems; and (d) **State level capabilities:** (i) strengthening department capacity to scale up seed production of open pollinated varieties of pulses, millets, oilseeds and other underutilized tuber crops; and (ii) IGKV technical assistance for seed production through supply of breeder seeds and revival of locally adapted seeds, demonstration of climate smart technologies/inputs, and preparation of economic and management models for *gauthans*.

Component 3: Value Addition and Market Access (\$10.3 million)

23. Toward improving household availability and consumption of nutritious food; reducing postharvest losses; and increasing access to profitable markets for surplus produce, the project will focus on: (a) promotion of safe food preservation and storage methods; (b) primary processing and value addition for local consumption; (c) building capacity and supporting FPOs for aggregation, primary processing, value chain development in select commodities through public and private partnerships; and (d) upgrading of local market infrastructure and strengthening community capacities.

24. **Subcomponent 3.1: Value Addition for Nutrition (\$1.0 million)** aims to increase the availability of nutritious foods among households and communities year-round by investing in better storage and reduced food wastage, value addition of surplus produce for local as well as external markets. Opportunities to supply local produce to large scale national programs (e.g. Integrated Child Development Services, [Mid Day Meal](#) and local schools) will be pursued.

25. Food Storage and Value Addition Facility. The common service centers at *gauthan* will be supported with common infrastructure for value addition and storage, and the capacity of select individuals/SHGs will be built, on improved technology and practices for dehydration, preservation and storage to retain nutritional value of commodities for longer periods. The project will provide grants to common service centers to access energy efficient small equipment and community warehouses for food storage. Training and capacity building support on technologies and operations and maintenance will be provided.

26. Strengthening and Leveraging Rural Markets. The project will invest in select rural *haats*, and with technical support, improve overall functioning and services. Rural markets will be supported and developed as socio-cultural and local trading spaces to spread awareness and nutrition information on foods, such as local leafy vegetables, wild fruits, etc., cooking and feeding practices and WASH.⁷⁶ The capacity of rural *haat* stakeholders with a key focus on women stakeholders, will be built for food safety

⁷⁵ Common infrastructure will comprise two types: (a) custom hiring center, where communities can access farm mechanization services at a nominal fee; and (b) common service center, where communities can access value addition, storage, and processing services at a nominal fee. The CRC or other nominated community institutions will manage and operate these common infrastructures.

⁷⁶ District Administration of Sukma is delivering healthcare services through *Haat Bazaar* Clinics.



and food handling systems.

27. Key activities to be financed under sub-component 3.1 include: (a) village-level energy efficient infrastructure support to LGs for postharvest, primary processing, packaging and storage; and (b) capacity building of nutri-entrepreneurs (LGs, SHGs and other community groups, individuals) in local value addition and energy efficient practices.

28. **Subcomponent 3.2: Value Addition and Market Access (\$9.3 million).** Local value addition and access to profitable markets should lead to higher returns for small producers and create local job opportunities. Small producers will be mobilized into FPOs (producer companies or cooperatives, per local context and producer preference) at the cluster (block/district) level for aggregation, value addition and access to profitable markets. Upon creation of a state specific FPO policy, a suitable approach will be adopted for FPO formation. FPOs should be socially inclusive, and as an economic, federated organization of interested and eligible⁷⁷ producers, their articles of association will be based on a set of performance criteria. Inclusion and active participation of women on FPO Boards of Directors will be pursued.

29. Support to FPOs. To leverage LGs' increased productive and commercial potential, at least two FPOs in each of the 14 project blocks will be formed and/or supported. Technical support will be provided to build the capacity of FPO board members, especially women, on governance, operations and business management, FM, marketing and managing market and production risks, including climate change. Small business planning grants will be provided to FPOs and aggregation, value addition⁷⁸ and marketing activities will be supported, once business plans are completed and approved. FPO capacity will be developed, through a TSA, to: (a) form FPOs and improve their governance and enterprise operation systems; (b) facilitate adoption of improved technology and practices⁷⁹ for value addition; (c) build linkages to profitable markets and buyers and develop related support mechanisms; (d) manage and mitigate production, market and climate risks (i.e. production planning, access/use of market information etc.). Investments will be made in handling, storage, value addition, traceability and certification, as informed by value chain analysis. Well-performing FPOs will be supported to take up nutri-enterprises and link them with Anganwadi Centers, schools and hostels, and market surplus produce at local *haat bazars*.

30. Value Chain Development. A TSA will set up a value chain development cell (VCDC) at the SPMU to: (a) undertake value chain studies and identify mass and niche market opportunities for surplus production of nutritive commodities, i.e. site specific and climate resilient; (b) develop private sector partnerships; (c) support FPO institutional capacity building, and management of market and climate-induced risks; and (d) provide technical, financial and market access support to FPOs. The VCDC will support strengthening state capacity on agribusiness, and though its objective will be to support value chain development in the project area, its broader scope will cover other state-determined priority areas. The VCDC will undertake value chain analysis of major commodities and prepare value chain development plans for select commodities of strategic relevance. Commodities with high uptake among women farmers and workers that better understand constraints faced in production, processing and accessing markets and transitioning to higher value products, will be prioritized. The VCDC, supported by a TSA, will assist in formation of FPOs and support them to meet statutory compliances, prepare business plans, raise

⁷⁷ Membership criteria will be established based on commodity, current surplus production, vicinity, interest and alignment of aspirations with producer collective objective.

⁷⁸ i.e., processing of cereals/millet/oilseeds; processing of fruits and vegetables and other horticulture produce i.e. dehydrated vegetables/ fruits, deseeding of tamarind, *chironji* decorticator, tikhur processing; cleaning and sorting of grains, seeds etc.

⁷⁹ Food safety guidelines and protocols under FSSAI, Good Manufacturing Practices etc.



finances, and build FPO Board capacity on production planning, business operation, finance and marketing.

31. The project will selectively invest in systems for differentiating products in more remunerative (domestic and export) markets through measures such as geographical indications, traceability, certification, etc. Following productive alliance approaches,⁸⁰ the VCDC will liaise with FPOs and lead private companies. The VCDC will facilitate the development of Public-Private-Community Partnerships with select national/international supply chain players, including International Finance Corporation investee clients. The VCDC will support the delivery of market advisory and decision support inputs to FPOs and other institutional stakeholders, through innovative ICT interventions, i.e. actual trade and market data, forecasts, advisories disseminated through mobile platforms and mobile apps etc.; and facilitate buyer-seller meets, industry summits, participation of key stakeholders in trade fairs.⁸¹

32. Key activities under sub-component 3.2 are: (a) hiring of a TSA to establish a state level value chain development cell (VCDC); (b) hiring of a TSA for FPO institution and capacity building including climate smart value chain development, climate-informed business plan development plus guidelines, manual development, etc.; (c) hiring of TSAs for development of specific commodity value chains (dairy/small ruminant/minor forest produce/horticulture etc.); (c) provision of business plan grants to FPOs (postharvest infrastructure using energy efficient systems and climate resilient technologies, working capital, technology, business operation setup, access to market) and capacity building; (d) support to select rural *haats*; (e) FPO linkages to profitable markets and provision of facilitation support including certification (organic, fair trade), traceability, packaging, branding; and (f) financing market promotion activities, IEC, and workshops/events, public-private-community partnerships, partnerships, market intelligence etc.

Component 4: COVID-19 Economic Recovery Response (\$15.1 million)

33. The COVID-19 Economic Recovery Response Component aims to mitigate food, health and income shocks and reduce vulnerability among communities, returnee workers and households in project areas, caused by the COVID-19 pandemic, and promote faster economic recovery. Local food supply and production will be stabilized and restored, and livelihoods and income opportunities will be stabilized and secured. Component activities will be fast-tracked and completed within the project's first 18 months.

34. *GPs* and villages, within the project area with a higher influx of returnee labor, will be prioritized for employment generating investments in land and water infrastructure. Activities will supplement the existing efforts of GoCG. *Gauthans* will be supported as centers for reskilling and entrepreneurship promotion among returnee labor, youth, and vulnerable households. To restore agricultural production activities and recapitalize households with their working capital requirements, farmers will be supported with basic agriculture input and production kits. Landless households will also be supported with livestock-based activities to augment their reduced income. Community and individuals will be supported to re-establish their vegetable plots and kitchen gardens and restore year-round supply of food and vegetables.

⁸⁰ <https://openknowledge.worldbank.org/handle/10986/25752>

⁸¹ The project will drive the introduction of modern technology and innovation for postharvest management, processing, product development, by-product utilization, packaging, storage etc. through all components. Technologies related to solar drying, dehydration/preservation, food fortification, etc., as per market demand, will be introduced in partnership with local/national knowledge organizations, i.e. Central Food Technology Research Institute (CFTRI), National Institute of Food Technology and Entrepreneurship Management (NIFTEM) etc., which are described and financed under component 4.



In addition, efforts will be made to increase community awareness of COVID-19 and associated health risks. Precautionary and safety measures will be promoted.

35. This component will finance investments to: (a) restore livelihoods and support employment generation, e.g. *gauthans* as centers for reskilling, short-term work opportunities, and restoration of local livelihoods around livestock management and NRM through entrepreneurship; (b) support common service center/custom hiring centers for off-farm and non-farm entrepreneurial activities; (c) support goat breeding farms as part of entrepreneurship development; (d) agriculture and horticulture production mini-kits including climate smart technology inputs; (e) facilitate community-based natural resource management, wage generating land and water conservation-based activities; (f) enhance water availability for agriculture; (g) provide input and material support to communities and individual *baadis*; and (g) increase awareness of COVID-19 safety precautions and hygiene practices.

Component 5: Project Management, Monitoring and Knowledge (\$11.2 million)

36. **Sub-component 5.1: Project Monitoring and Management (\$10.7 million)** will support project coordination, implementation, FM, procurement, and environmental and social safeguards management at the state, district, cluster and community levels. A SPMU will be established drawing officers from the Directorates of Agriculture, Horticulture, Veterinary Services and Fisheries; hiring professionals from the market and engaging short-term consultants. The SPMU will be responsible for project implementation, in accordance with the agreed Project Implementation Plan, Community Operations Manual, COVID-19 Economic Recovery Response Manual, Project Agreement, Loan Agreement, the Environment and Social Management Framework and Commitment Plans, and Bank's fiduciary policies. The project will also establish DPMUs at district and BPIU at block levels to implement project activities. The BPIUs will report to respective DPMUs which will have a direct reporting line to the SPMU. Annex 2 provides detailed implementation arrangements.

37. The SPMU will hire TSAs to support project activities. Hiring of staff and consultants; training and capacity building, including exposure visits; procurement of resource/support agencies and service providers, office infrastructure, logistics support, MIS, geographic information system, ICT-mediated citizen engagement systems, and other operational expenses will be financed under this sub-component. Techno-managerial capacity building measures for state, district and block level teams will be undertaken at national/international institutes i.e. Indian Institute of Management, Raipur, Administrative Staff College of India, Centre of Good Governance etc. and through exposure visits.

38. Service delivery of DoAB will be improved through the set-up of a monitoring and evaluation learning cell with technical support for process monitoring, ICT and geographic information systems-based management information system, software applications, mobile applications etc. mainly for improving Soil Health Card development, delivery and traceability; and overall data management of project implementation. This will include an integrated dashboard at state level for planning and implementation monitoring at district, block and village levels. Results-based monitoring systems, online MIS with spatial/geographic information system mapping, beneficiary tracking portal, etc. will also be developed, as part of a decision support system. A bottom up overall data management system will be built by equipping the cluster coordinators with tablets and capacity building.

39. Key activities under sub-component 5.1 are: (a) Hiring of a recruitment agency; (b) salaries and overhead cost of state and district project management units; (c) setup of a monitoring, evaluation and



learning cell; (d) commissioned studies (baseline, mid-line, end-line) and process monitoring; (e) establishment of a MIS-based on ICT and geographic information system; and (f) study tours for officials.

40. Sub-component 5.2: Knowledge Management and State Capacity (\$0.5 million) aims to strengthen state capacity by infusing new information and knowledge, and improving systems and processes, based on similar development contexts from other states/countries. The project will support the creation of an ecosystem to capture, preserve and scale traditional knowledge and practices of tribal communities relevant to the project scope. Toward this end, knowledge exchange between stakeholders will be promoted. The knowledge exchange process within and between communities, states, south-south countries and between developing and industrial countries, will be actively pursued through virtual webinars, workshops etc. Systems for identification and validation of tribal traditional knowledge, integration or refinement with scientific knowledge, documentation and packaging of tacit and explicit knowledge, maintenance of repositories and dissemination of knowledge, will be set up. For wider community level adoption of new knowledge, information (relevant tribal traditional knowledge and those finetuned with modern scientific knowledge) and promotion of innovations, particularly to drive household nutrition and augment income of youth and women, the project will invest in awareness campaigns, conducting tribal traditional knowledge *melas*,⁸² etc. Emphasis will be placed on tribal to tribal knowledge exchange by facilitating the flow of ideas and information across the region.

41. Partnerships will be sought with national and international organizations i.e. Central Food Technology and Research Institute, Mysore; Indian Institute of Forest Management, Bhopal; National Institute of Nutrition, Hyderabad; Bioversity International, etc. to access current knowledge on thematic focus areas, particularly climate change adaptation and mitigation technology. Stakeholder capacity will be built to facilitate accelerated adoption of such technologies/practices. For improved planning; inter-departmental convergence and functional integration; implementation and monitoring; and for promoting innovation, technical assistance support will be provided to project districts.

42. Key activities under sub-component 5.2 include: (a) partnerships with knowledge organizations; (b) hiring of a knowledge management and communication agency; and (c) support to district innovation through technical assistance for strengthening systems and processes, and commissioning studies, arranging events/meetings etc.

Component 6: Contingent Emergency Response Component (\$0 million).

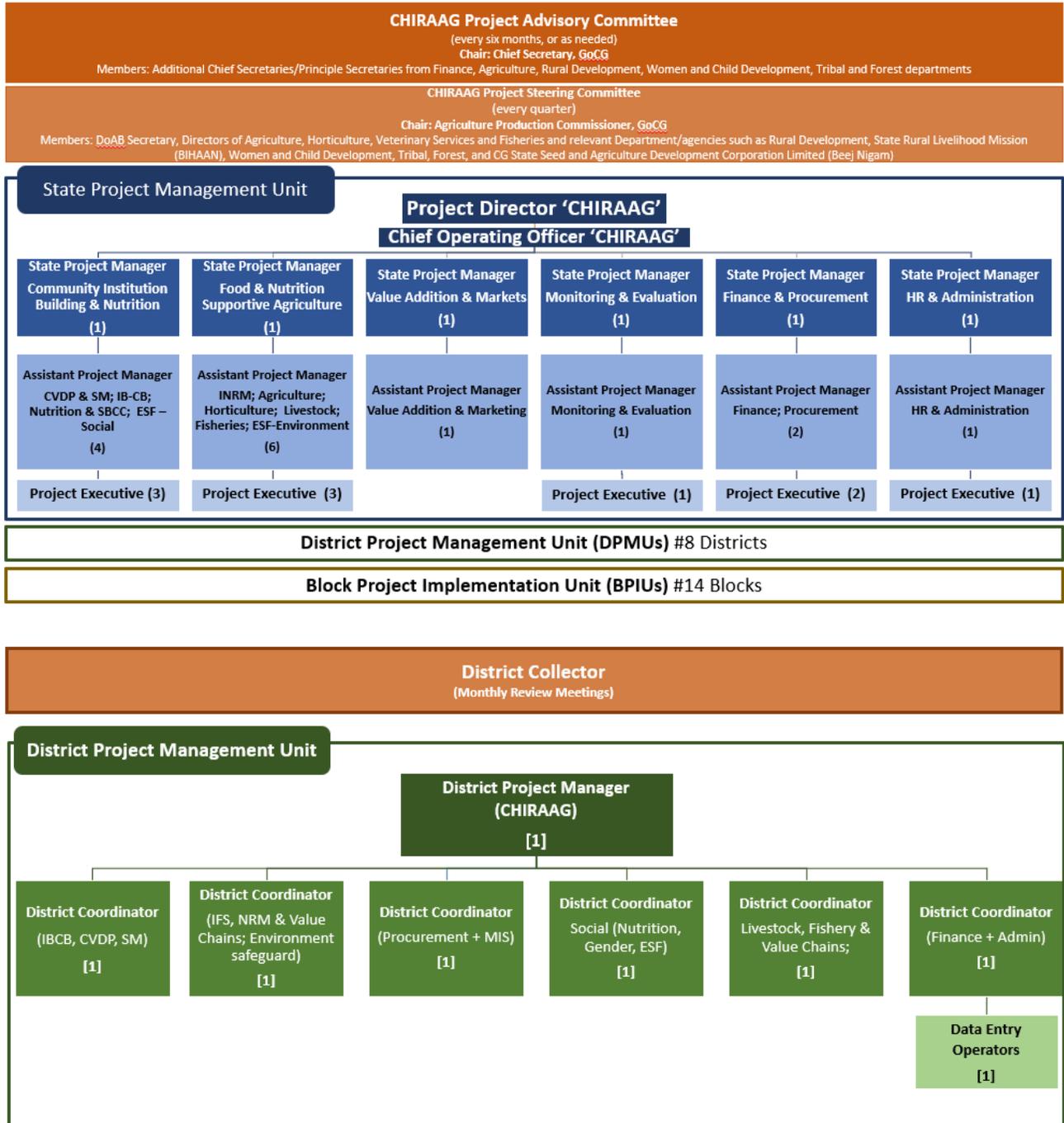
43. This zero-budget project component will ensure implementation flexibility in the event of future emergencies and disasters, especially given Chhattisgarh's climate hotspot designation in South Asia, and its vulnerability to droughts, locusts and zoonotic outbreaks.

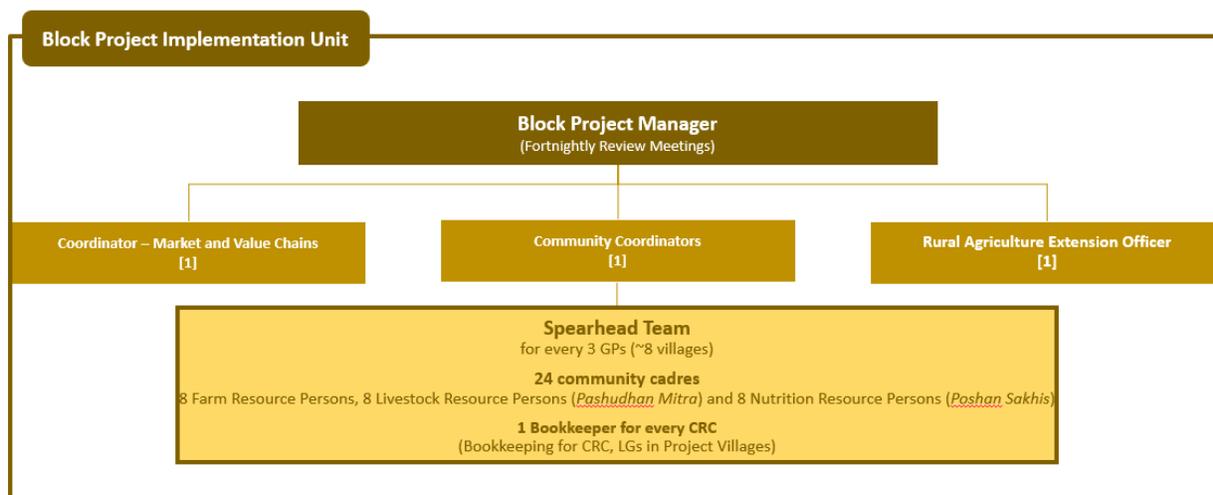
⁸² Knowledge and technology fairs.



ANNEX 2: Implementation Arrangements and Support Plan

Further to the details contained in the section on Implementation Arrangements, below are detailed organograms for each level of project management (also see Table 1, below).





Community level: At the community level, *Gauthan* Committees will be leveraged to gain village entry and convergence support (see Section II, Part C: Project Beneficiaries, Figure 4 for more detail). A CRC will be created to manage the larger CHIRAAG objectives under *Gauthan* Committees, other INRM activities and IFS management at village level. CRC representation will comprise LGs, FPOs, village organizations/ SHGs, Joint Forest Management Committees ensuring participation of women and tribal. At the village level, multi-commodity LGs will be constituted for mobilizing interested farmers and producers to improve their livelihood activities related to farming and allied sectors that would support planning, and implementation of activities related to productivity enhancement, aggregation, primary level value addition, and other collective actions. Community cadres, to be appointed per thematic requirement, will support groups to execute and improve management practices. LGs will be further consolidated into FPOs to aggregate them downstream especially in postharvest management, value addition and aggregation leading to successful market linkages. For every 3 *GPs* (~8 villages), there will be a spear head team comprised of 24 community resource persons (8 farm, 8 livestock and 8 nutrition resource persons). A BPIU Community Coordinator will manage the spearhead team. Additionally, a community resource person *cum* bookkeeper, based at each *gauthan's* CRC, will maintain registers, record transactional data, and minutes of CRC and LG meetings within the *gauthan* catchment area. The Community Operations Manual will include procurement arrangements applicable for community level activities.

Table 1: CHIRAAG Project Organogram with Responsibilities

Structures	Responsibility
Project Advisory Committee	Headed by the Chief Secretary, responsible for providing project oversight and policy guidance, overall monitoring and direction
Project Steering Committee	Headed by the Agriculture Production Commissioner/co-convened by the Project Director, CHIRAAG provides strategic advice and facilitation of convergence, approval of annual action plans & works, monitoring
SPMU	Headed by Project Director, CHIRAAG with dedicated thematic leads
DPMU	Under the direct supervision of the District Project Manager, a team of thematic professionals from the market will monitor and implement the project in the district and block.
BPIU	Day-to-day implementation and monitoring of the project in the selected CHIRAAG block.
<i>Gauthan</i> Committees/ CHIRAAG Resource Committee	Village entry, monitoring and oversight at village <i>panchayat</i> level and community interventions
Farmer Producer Organizations, Livelihood Groups	Implement activities, provide leadership, develop camaraderie, peer learning



ANNEX 3: Financial Management and Disbursement

Budgeting and Counterpart Funding: The SPMU will prepare the Annual Action Plan for each Financial Year (FY) in the preceding FY, for which PSC approval will be sought by the SPMU Project Director. The project will be budgeted as a separate line item under DoAB. The Director, Department of Agriculture will be the authorized Drawing and Disbursing Officer drawing funds from the allocated project budget. For FY20-21, a budget provision of INR 50 crores has been made for CHIRAAG [Scheme Code 6353] under Demand No 13.

Flow of Funds: All project expenditures will be pre-financed from the state budget. The flow of funds from the budget will be based on disbursement advice raised by SPMU/DPMU/BPIU (and approved and forwarded by SPMU to the Directorate of Agriculture and processed centrally as direct payments or as fund allotments through e-Kosh. These will include: (a) payments to vendors, suppliers, consultants and service providers, including payments for project procurement undertaken by *Beej Nigam*; (b) releases to community institutions for approved sub-projects; (c) inter-unit transfers to [13] DPMUs to meet agreed district level work plans. At DPMU level, the Deputy Director Agriculture, as the designated Drawing and Disbursing Officer, may further sub-allot the project funds to Deputy/Assistant Director Horticulture (A/DDH), Deputy/Joint Director Veterinary Services, or the Deputy/Assistant Director Fisheries (A/DDF) through e-Kosh. As per requirements, the SPMU may also raise a disbursement advice, instructing the A/DDH or Joint Director Veterinary Services or A/DDF to allocate funds through e-Kosh to the Senior Agriculture Development Officer at sub-division level, as may be required.

CHIRAAG Bank Accounts at SPMU/DPMU/BPIU and community level institutions: At all levels, Drawing and Disbursing Officers will draw funds from e-Kosh and deposit to separate CHIRAAG bank accounts, opened upon approval of the State Finance Department. At community level, institutions (LGs, *Gauthan* Committees, FPOs) will open separate CHIRAAG bank accounts, for direct transfer of project funds.

Set-up of CHIRAAG as State Scheme in PFMS: The Project Director will be the State Scheme Manager for CHIRAAG and all bank accounts, including SPMU, DPMU, BPIU and community level institutions will be mapped and registered under the scheme in PFMS as implementing agencies. This will provide last mile visibility of bank account balances, fund transfers, and fund utilizations across the project. This will be a part of the Disbursement and Financial Information Letter and registration in PFMS will be a mandatory requirement for transfer of project funds into bank accounts at all levels. The mapping under PFMS will be under five separate levels: Level 1: State – SPMU and *Beej Nigam*; Level 2: District – DPMU, Deputy Director Agriculture, Deputy/Assistant Director Horticulture (A/DDH), Deputy/Joint Director Veterinary Services and Deputy/Assistant Director Fisheries (A/DDF); Level 3: Sub Division - Senior Agriculture Development Officer; Level 4: Community – recipient of large grants [> INR 5 lakhs] – Producer Collectives; and Level 5: Community – recipient of small grants [< INR 5 lakhs] - LGs and *Gauthan* Committees.

Accounting and Maintenance of Accounting Records: All expenditures processed at Directorate of Agriculture level will be accounted for in the state's e-Kosh system. E-Kosh will also record the funds drawn at DPMU and BPIU levels as expenditures. For all project funds drawn from e-Kosh [SPMU/DPMU/BPIU] and deposited in separate CHIRAAG bank accounts, manual accounting records [cash books, vouchers with supporting documents, reconciled bank statements] will be maintained by the respective GoCG officers. Quarterly Utilization Certificates will be prepared at all levels, compiled and consolidated for each district by Deputy Director Agriculture and submitted to SPMU within 30 days of close of each quarter. All



community level institutions receiving project funds will be required to maintain manual accounting books [cash books, vouchers with supporting documents, bank statements reconciled with cash books]. Project fund recipients must prepare Quarterly Utilization Certificates, compiled and consolidated for each district by Deputy Director Agriculture and submitted to SPMU within 30 days of the close of each quarter.

Internal Controls, including internal audit: Chhattisgarh General Financial Rules will provide the internal control framework, including internal audit processes for all project expenses using e-Kosh for accounting. For community level institutions, governance arrangements, the Community Operations Manual, financial and administrative procedures will guide FM processes, including the delegation of financial powers. Protocol for sharing of common costs between the Bank and other financing partners will be agreed and will guide the processes to be followed for attribution and accounting of the costs of shared resources.

Financial Reporting: The Project Director will be responsible for preparing quarterly financial reports using agreed project templates. The quarterly interim unaudited financial reports (IUFRs) will be submitted to the Bank within 45 days of the close of each quarter and will form the basis for disbursements from the IBRD Loan. The preparation of the quarterly IUFRs will be based on: (a) e-Kosh reports for all expenditures processed at Directorate of Agriculture and *Beej Nigam* levels, including funds drawn at DPMU and BPIU levels accounted for as expenditures in e-Kosh; and (b) consolidated statement of accounts of SPMU, DPMU plus BPIU and *Beej Nigam*. All sub-grants released to community institutions, following the standard operating protocols documented in the Community Operations Manual will be considered expenditures for disbursement purposes. The project will separately track and reconcile Utilization Certificates received from community institutions with the PFMS Dashboard report on unspent balances in bank accounts, which will be adjusted and refunded at project close at all levels.

Staffing and capacity building: GoCG finance staff at the Directorate of Agriculture and other district/sub-divisional levels will be responsible for managing project funds. To cope with the additional workload, additional accounting staff, on contract basis, will be engaged at the Directorate and SPMU level to support existing departmental staff to ensure adequate oversight of project FM performance.

External audit: Through the State Principal Accountant General, the Comptroller and Auditor General of India will conduct an external audit of departmental level project-related expenditures. Statements of expenditure at all project levels will be submitted to the Comptroller and Auditor General by June 30 each year to allow adequate time for the audit, to be conducted in accordance with terms of reference agreed by the Comptroller and Auditor General for audit of Bank-financed projects. Audit reports will be submitted within nine months of the end of each financial year. The SPMU will engage a firm of chartered accountants to conduct the annual statutory audit as per the agreed terms of reference.

Disbursement arrangements: The Bank will finance 67% of expenditures up to \$84.9 million, except for Component 4 which will be 100% financed. Disbursement will be based on quarterly IUFRs submitted to the office of Controller of Aid Accounts and Audit and the Bank. Disbursements will be as follows: (a) GoCG will pre-finance all project expenditures using the state budget; (b) on a quarterly basis, DoAB will prepare IUFRs [in INR] and electronically upload them to the Office of Controller General of Aid, Accounts and Audit portal; (c) Office of Controller General will process and electronically submit IUFRs to the Loan Office, World Bank, Chennai for disbursement in United States dollars; (d) World Bank Chennai will trigger the payment in United States dollar into the GoI Consolidated Fund maintained at the Reserve Bank of India New York; (e) on a back to back basis, GoI will transfer funds [in INR equivalent] to the Consolidated Fund of Chhattisgarh maintained in the Reserve Bank of India Nagpur.



ANNEX 4: Procurement

Based on the Procurement Risk Assessment, associated mitigation measures are shown in Table 1.1.

Table 1.1: Assessed Procurement Risks and Mitigation Measures

Risk Factor	Mitigation Measure
Weak capacity due to non-familiarity with Bank projects and procurement procedures	<ul style="list-style-type: none"> • Appropriate <i>procurement staffing</i> at SPMU, Division and DPMU level. • Assignment of an experienced team by <i>Beej Nigam</i>, suitably strengthened, if required, for project procurement • SPMU to be supported by a full-time <i>procurement consultant</i>. • Strengthening and capacity building of staff at state, division level through training at ASCI/NIFM. Other concerned DPMU staff to be trained by SPMU/division staff for support and monitoring of community-level activities.
Highly decentralized project resulting in delays in procurement and contract management processes	<ul style="list-style-type: none"> • <i>Community operational Manual to include procurement arrangements</i> for community drive development activities to ensure consistency across the board • The project implementation plan will specify the delegation and procurement implementation arrangements. • All procurement activities at SPMU, <i>Beej Nigam</i> and DPMU level to be included in <i>procurement plan in Systematic Tracking of Exchanges in Procurement (STEP)</i> and prior cleared by Bank. Procurement at community level to be collated and monitored by DPMU and shared with SPMU and Bank on biannual basis. • <i>Standard/ Model Bid documents and contract documents including e-Procurement documents</i> as agreed with Bank shall be used. • A <i>procurement management information system</i> for tracking and providing required information on all procurement activities and contracts at the decentralized level shall be developed. • <i>All records</i>, from procurement planning to contract completion, and procurement complaints shall be updated in STEP, retained in chronological order and made available as and when requested by the SPMU or Bank.
Noncompliance with agreed procurement arrangements	<ul style="list-style-type: none"> • The project shall ensure that the agreed processes and procedures are fully complied (including eligibility, debarment and Bank audit and review requirements). • A <i>robust complaint redressal mechanism</i> will be put in place. The complaint handling authority, the form of complaint register, response time, decision-making mechanism, and other features will be outlined in detail in the project implementation plan. • <i>Procurement prior and post review</i>: The Bank will conduct implementation support missions to review the procurement performance of the project. All contracts not covered under prior review by the Bank will be subject to post review during implementation support missions and/or special post-review missions, including missions by consultants hired by the Bank. • <i>For activities at community level, an annual post procurement review</i> for an agreed percentage of contracts shall be conducted by an SPMU- appointed independent consultant as per terms of reference and reporting requirements agreed with the Bank.

Staffing arrangements: The SPMU procurement manager, supported by a procurement assistant manager and a procurement consultant, will carry out procurement. *Beej Nigam* will assign experienced and skilled procurement staff to handle assigned procurement activities. At the district level, the DPMU procurement officer will be responsible for procurement, as well as block level procurement, engaging in procurement capacity building of village communities and ensuring compliance as per the agreed community level



procurement arrangements. Procurement officials at all levels will undergo procurement trainings. The procurement point person will also facilitate maintenance of all procurement records and assist in any procurement review or information that may be requested from time to time. TSAs will also engage with community organizations to ensure appropriate implementation of project-financed activities.

Procurement Planning, Methods and Threshold: Based on agreed cost tables, the SPMU shall ensure appropriate procurement planning and uploading of the procurement plan for the first 18 months of project implementation (except community-level activities) in STEP for the Bank’s prior clearance. Thereafter, the plan shall be regularly updated at least annually. The procurement plan (including contracts to be procured under advance contracting and retroactive financing) for the first 18 months of project implementation is uploaded in STEP for World Bank’s prior approval. It sets out the selection methods, estimated costs, market approach, prior review requirements, and timeframes. The procurement plan shall be updated annually or as required. The below table details various procurement methods and market approaches to be used for Bank-financed activities. Unless otherwise agreed with the Bank, the Bank’s standard procurement documents or model bid documents with national procurement procedure conditions as agreed with Gol, standard requests for proposal documents, and standard forms of consultant contracts will be used.

Table 1.2: Procurement Methods and Thresholds

Procurement approach and method	Thresholds (US\$ equivalent)
Open International (Goods, IT, and Non-consulting services) – Request for Bids (RFB)	>10 million
Open National (Goods, IT, and Non-consulting services) Request for Bids (RFB)	up to 10 million
National Request for Quotation (RFQ) – (Goods/Works)	Up to 100,000
Open International (Works) – Request for Bids (RFB)	>40 million
Open National (Works) - Request for Bids (RFB)	up to 40 million
Direct Selection	With prior agreement, based on justification For Goods/ Works/ non-consulting services: As per paragraph 6.8-6.10 of Procurement Regulations. For Consultants: As per paragraph 7.13-7.15 of Procurement Regulations
Framework Agreement	For Goods/Works/Non-consulting services: According to paragraphs 6.57-6.59 of Section VI of the Procurement Regulations For Consulting services: According to paragraph 7.33 of the Procurement Regulations
Force Account	In accordance with paragraphs 6.54 and 6.55 of Section VI of the Procurement Regulations, and with prior agreement in Procurement plan with the Bank
Consulting Services (Firms)	CQS: <0.3 million as per requirements of paragraphs 7.11 and 7.12 of Section VII of the Procurement Regulations. LCS, FBS: in justified cases QCBS, QBS: in all other packages
Shortlist of national consultants	Up to 800,000

Note: The applicable thresholds: unless prior agreed otherwise with World Bank are as under DPMU Procurement – up to \$100,000 equivalent; and Community Procurement – up to \$10,000 equivalent for activities below US\$10,000 through *Gauthans* and LGs and more than INR 5 lakhs through FPO.

CQS = Selection Based on Consultant’s Qualifications; FBS = Fixed Budget Based Selection; LCS = Least Cost Based Selection; QBS = Quality Based Selection; QCBS = Quality and Cost Based Selection; RFB = Request for Bids; RFQ = Request for Quotations.



Table 1.3 Procurement prior-review thresholds

<ul style="list-style-type: none">a) Works: All contracts more than \$10 million equivalent.b) Goods and IT: All contracts more than \$2 million equivalent.c) Non-consulting services: All contracts more than \$2 million equivalent.d) Consultants: All contracts more than \$1 million equivalent for firms and more than \$300,000 equivalent for individuals.e) Direct Selection: The justification of Direct Selection for all contracts.
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National procurement procedure conditions. The Bank’s Standard/Model Procurement Documents as agreed with Bank, will be used. National competition for the procurement of goods, works, and non-consulting services shall be in accordance with the established thresholds, and will be in compliance with Procurement Provisions under paragraphs 5.3–5.6 of Section V of the Procurement Regulations and the following National Procurement Procedures conditions agreed with Go I:

- a) Only the model bidding documents for National Competitive Procurement agreed with the GoI Task Force (and as amended for time to time), shall be used for bidding.
- b) Invitations to bid shall be advertised on a widely used website or electronic portal with free open access at least 30 days prior to the deadline for the submission of bids, unless otherwise agreed in the approved procurement plan.
- c) No special preference will be accorded to any bidder either for price or for other terms and conditions when competing with foreign bidders, state-owned enterprises, small-scale enterprises, or enterprises from any state.
- d) Except with the prior concurrence of the Bank, there shall be no negotiation of price with the bidders, even with the lowest evaluated bidder.
- e) Government e-Marketplace (GeM) set up by the Ministry of Commerce, GoI will be acceptable for procurement under the Request for Quotations (RFQ) method.
- f) At the Borrower’s request, the Bank may agree to the Borrower’s use, in whole or in part, of its electronic procurement system, provided that the Bank is satisfied with the adequacy of such system.
- g) Procurement will be open to eligible firms from any country. This eligibility shall be as defined under Section III of the Procurement Regulations. Accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the World Bank for reasons other than those provided in Section III of the Procurement Regulations.
- h) The Request for Bids (RFB)/Request for Proposals (RFP) document shall require that Bidders/Proposers submitting Bids/Proposals include a signed acceptance in the bid, to be incorporated in any resulting contracts, confirming application of, and compliance with, the Bank’s Anti-Corruption Guidelines, including without limitation the Bank’s right to sanction and the Bank’s inspection and audit rights.
- i) The Borrower shall use an effective complaints mechanism for handling procurement-related complaints in a timely manner.
- j) Procurement Documents will include provisions, as agreed with the Bank, intended to adequately mitigate against environmental, social (including sexual exploitation and abuse and gender-based violence), health and safety (“ESHS”) risks and impacts.

eProcurement: Procurement under both international and national competitive procedures will be conducted through government e-tendering systems provided by e-ChIPS, which have been assessed and deemed acceptable by the Bank for national competitive bidding for goods and works. National Informatics Centre’s system shall be used for consultancy services unless another system is accepted by the Bank. **Use of GeM:** Activities up to request for quotation threshold of \$100,000 equivalent may be procured using GeM details which shall be provided in the procurement plan and PPSD.



District level contractual activities. DPMUs will be the focal point for procurement, reporting implementation progress to the SPMU, providing day to day guidance, training of trainers, handholding support to communities, overall coordination and oversight of procurement activities. DPMU-level contracts are not expected to exceed the request for quotations threshold of \$100,000 equivalent. Activity above \$100,000 shall be carried out with SPMU oversight. Upon VDP finalization, identified water conservation activities shall be implemented by the Directorate of Agriculture's Soil and Water Conservation Unit with coordination support from DPMUs and BPIUs. The Soil and Water Conservation Unit implementation team will include a procurement point person. All activities by the Soil and Water Conservation Unit will be prior reviewed and cleared in the Bank's STEP. Project activities are not envisaged to exceed the national competitive bidding threshold. A detailed list of key activities at SPMU, DPMU and Community levels shall be included as part of PPSD.

Community level contractual activities. A CRC will be created for managing activities related to INRM and IFS. VDPs will be based on micro plans, that will determine the activities to be carried out at community level, and a procurement plan based on each VDP shall be prepared. The concerned line departments and TSAs will engage with community organizations to ensure appropriate implementation of project-financed activities, per agreed procurement processes and procedures specified in the community manual. In accordance with VDPs, LGs and *Gauthan* Committees shall be eligible to carry out activities below \$10,000 equivalent, as per the agreed cost tables and based on SPMU prior approval under DPMU oversight, may carry out activities of more than INR 5 lakhs. For contracts not exceeding \$10,000 equivalent, information (similar to that required in STEP) shall be prepared in an Excel table on a biannual basis, collated and shared with the Bank. For activities exceeding \$10,000, the agreed process shall be followed. The SPMU and DPMU shall ensure that these activities fully comply with agreed procurement arrangements (including eligibility and debarment). The Community Operational Manual shall describe applicable procurement arrangements, processes and procedures for community procurement, and shall be made available by effectiveness.

Internal controls: *Fraud and Corruption (F&C) and Audit Rights:* The Bank's Anti-Corruption Guidelines, including the Bank's right to inspect and audit all accounts, records, and other documents relating to the project that are required to be maintained pursuant to the Financing Agreement shall apply.

Contingent Emergency Response Component (CERC): As and when triggered and agreed with the Bank, the SPMU shall follow the emergency procurement arrangements permitted to be used for such contingencies. Notwithstanding any provision to the contrary in this section of the document, emergency expenditures required under the CERC shall be procured in accordance with the procurement methods and procedures to be set forth in the CERC Operations Manual applicable to such CERC, as and when triggered and agreed with the World Bank. The arrangements applicable to the CERC shall not apply to other components that will follow the arrangements stated in the foregoing paragraphs.



ANNEX 5: Economic and Financial Analysis

1. The economic and financial analysis assesses the project’s economic soundness and its likely impact on target beneficiaries. Economic and financial impacts were estimated at two levels: (i) societal economic impacts of the project resulting from the overall project investment; and (ii) direct economic and financial impacts of the project’s productivity and income enhancing interventions on primary beneficiaries.

2. The analysis considers project costs and project outreach assumptions at the time of appraisal (June 2020). The assumptions for the economic analysis are linked to the project’s results framework and its PDO indicators, and it is informed by the results of the financial analysis, carried out for the project’s main productive activities. A sensitivity analysis was conducted to assess the impact of changes in the main parameters affecting the project’s economic outcome.

3. **Project Area and Beneficiaries.** Beneficiary households will be selected for project inclusion through a participatory, community-driven process. Due to the project’s demand driven nature, targeted households will overlap across the sub-components, as most households will be mapped to at least two sub-sectoral interventions, to support the full cycle of nutrition-supportive, resilient production systems. The sub-sector-wise outreach will include about 180,000 households for nutrition sensitive and climate resilient agriculture, over 150,000 households for livestock, and 15,000 households for fisheries. Table 1 provides an overview of project costs, outreach and phasing assumptions, including estimated costs per main unit of output (e.g. farm household reached). This facilitates assessment of the project’s efficiency at completion in terms of actual costs vis-à-vis planned costs per unit of output, and comparison with similar projects.

Table 1: Outreach and Phasing of CHIRAAG

Description	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
		2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	
Total project costs	INR M	1,330.2	2,477.7	3,011.1	2,130.2	882.2	575.2	10,406.5
	US\$ M	18.2	33.9	41.2	29.2	12.1	7.9	142.6
Number of project districts	District	8	-	-	-	-	-	8
Number of project blocks	Block	14	-	-	-	-	-	14
Number of project villages	village	50	250	400	300	-	-	1,000
Comp 1.1 Participatory Village Planning and Community Institution Building								
Total sub-component costs	INR M	200.9	219.2	249.4	243.1	236.9	231.5	1,381.1
	US\$ M	2.75	3.00	3.42	3.33	3.24	3.17	18.92
Number of LGs	LG	150	250	500	500	400	200	2,000
Number of CRCs	CRC	75	125	250	250	200	100	1,000
Comp 1.2 Household Food Availability and Nutrition Practices								
Total sub-component costs	INR M	30.3	50.1	66.0	56.0	49.3	24.0	275.7
	US\$ M	0.42	0.69	0.90	0.77	0.68	0.33	3.78
Nutrition training	HH	6,000	36,000	60,000	60,000	18,000	-	180,000
Comp 2.1 Community-Based Natural Resource Management								
Total sub-component costs	INR M	39.0	567.1	1,191.8	751.8	-	-	2,549.6
	US\$ M	0.53	7.77	16.33	10.30	-	-	34.93
Access to soil health cards	HH	10,000	50,000	70,000	50,000	-	-	180,000
Area under improved community-based	ha	-	3,750	8,750	5,000	-	-	17,500
Access to improved soil management	HH	4,000	7,000	7,000	2,000	-	-	20,000
Comp 2.2 Integrated Food and Nutrition-Supportive Agriculture								
Total sub-component costs	INR M	161.2	733.9	960.4	649.5	254.6	50.7	2,810.2
	US\$ M	2.21	10.05	13.16	8.90	3.49	0.69	38.50



Area under seed production	ha	10	30	85	75	-	-	200
Backyard poultry	HH	-	55,000	55,000	40,000	-	-	150,000
Artificial insemination promotion in dairy	village	-	200	280	240	-	-	720
Goat breeding farms	HH	100	1,000	500	200	-	-	1,800
Goat rearing farms	HH	5,000	20,000	20,000	10,000	5,000	-	60,000
Pig breeding farms	HH	-	30	30	40	-	-	100
Fishpond development	HH	-	2,250	5,250	5,000	2,500	-	15,000
Community pond renovation	pond	-	50	100	100	-	-	250
Custom Hiring Centers established	unit	5	60	100	30	5	-	200
Agriculture resource person supported	unit	50	300	500	150	-	-	1,000
Livestock resource person supported	unit	50	300	500	150	-	-	1,000
Artificial insemination paravets supported	unit	-	65	65	25	-	-	155
Support to gauthans for common	village	-	50	150	150	-	-	350
Comp 3.1 Value Addition for Nutrition								
Total sub-component costs	INR M	5.0	32.7	82.7	32.5	-	-	152.9
	US\$ M	0.07	0.45	1.13	0.45	-	-	2.09
Support to food processing for nutrition	village	50	250	600	100	-	-	1,000
Comp 3.2 Value Addition and Accessing Profitable Markets								
Total sub-component costs	INR M	51.8	195.1	251.7	212.2	173.3	85.0	969.1
	US\$ M	0.71	2.67	3.45	2.91	2.37	1.16	13.28
FPOs promoted	FPO	2	10	10	6	-	-	28
Comp 4.1 COVID-19 Economic Recovery Response								
Total component costs	INR M	630.1	467.4	-	-	-	-	1,097.4
	US\$ M	8.63	6.40	-	-	-	-	15.0
Villages covered	Villages	1,500	-	-	-	-	-	1,500
Farmers supported	HH	75,000	42,000	-	-	-	-	117,000
Gauthans supported	Gauthans	100	200	-	-	-	-	300
Comp 5.1 Project Management, Monitoring, Evaluation and Learning								
Total sub-component costs	INR M	210.0	195.1	202.1	167.8	161.4	177.3	1,113.5
	US\$ M	2.88	2.67	2.77	2.30	2.21	2.43	15.3
Comp 5.2 Knowledge management and strengthening State capacity								
Total sub-component costs	INR M	1.9	17.2	6.9	17.4	6.7	6.7	56.9
	US\$ M	0.03	0.23	0.09	0.24	0.09	0.09	0.78
Knowledge partnerships	unit	-	1	-	1	-	-	2
District convergence meetings	unit	-	1	1	2	2	2	8

4. Economic Analysis. The main project benefits that contribute to the project EIRR are increased/diversified targeted beneficiary incomes in the project area. Specifically, this will result from: (a) intensification and diversification of agriculture, livestock, and fisheries activities; (b) increase in area under irrigation resulting in increased cropping intensity and productivity; (c) improved marketing, postharvest management and processing; and (d) increased opportunities for farm and non-farm employment including self-employment.

5. In addition, there will be significant benefits from improved resilience to climate change and positive nutritional effects associated with diversification of production systems towards crops, livestock, and fisheries activities. It is expected that substantial employment will be generated due to the increased area under crop production – and the resulting opportunities for on-farm labor, particularly for the landless poor who are mainly employed in agriculture as wage workers – as well as handling, processing and marketing of incremental production.

6. *Assumptions.* The economic analysis assumes that PDO indicator 1 – 180,000 targeted households experience an increase in average real annual household income – will be achieved by project end. Based



on similar Bank projects in India, a base case assumes that beneficiaries will experience a 30% increase in real incomes. This assumption is considered realistic and supported by the financial analysis. Current estimates of average annual income of rural households in Chhattisgarh range from INR 71,064⁸³ to INR 87,264.⁸⁴ Assuming: (a) a present average annual household income of INR 75,000 (average of the two estimates, to be verified by the project’s baseline study); (b) an average annual inflation of 5%; and (c) an average annual real household income increase of 3.3%⁸⁵ over the project period that would take place without the project; a 30% increase in average annual real household income of targeted households would result in an annual household income of INR 161,000 by project end (compared to ~INR 124,000 without the project). The economic analysis is based on constant prices for both benefits and costs. It was assumed that targeted households would achieve the 30% increase in income in year 4, after project support, with incremental increases in income from years 1 to 3.

7. The total financial project costs have been converted to economic costs (which exclude taxes and duties and price contingencies), using the Costab software. The analysis was carried out for a 20-year period, which is the estimated project life including the six-year project implementation period. It is based on 2020 constant prices, and a discount rate of 12% was assumed. The Indian Rupee (INR) was used as the unit of account and the official exchange rate of INR 73.0 to \$1 was applied when converting to US\$.

8. *Economic viability.* The project’s EIRR over a 20-year period for the base case, excluding benefits from GHG emission reduction, is 23.5% with a net present value of \$72.8 million at a discount rate of 12%. Placing a monetary value on potential GHG mitigation benefits in terms of reduction in GHG emissions and increased carbon sequestration (estimated at 787,800 tons of CO₂ equivalent (tCO₂e) over 20 years), the base case EIRR increases to 25.1% and 26.8% for low and high shadow price scenarios, respectively. This assumes that the low shadow price is \$40/ton at project start and reaches \$50 by project end (20 years) and a high shadow price of \$80 that reaches \$100 by project end. On this basis, at full development, annual GHG benefits are valued at \$10.7 million and \$21.4 million for the two scenarios, respectively.

9. *Sensitivity analysis.* A sensitivity analysis was conducted to assess the impact of changes in main parameters affecting the project’s economic outcome as a result of changes in project costs and expected benefits from the production systems promoted by the project (crop, livestock, and fisheries); and delays in project execution due to risks identified in the project’s risk analysis. Results show that the project remains economically viable even in the case of adverse changes in project costs and benefits. A reduction in project benefits by 20% results in an EIRR of 24.7%. A 20% increase in project costs combined with a 20% reduction in project benefits, coupled with a two-year delay of benefits, reduces the EIRR to 14.8%. Table 2 presents an overview of the sensitivity analysis including further scenarios.

Table 2: Economic Rate of Return and Sensitivity Analysis

Scenario			EIRR	ENPV (\$million)
Base Case (without GHG)			23.5%	72.8
Base Case (with GHG)			24.9%	82.1
Changes (without GHG)				
Program Costs	Incremental Benefits	Benefits delayed by		
+ 20%			19.1%	52.4
+ 40%			15.8%	32.0

⁸³ Estimates for Chhattisgarh, Doubling Farmers Income Committee’s estimates for 2015-16.

⁸⁴ NABARD All India Rural Financial Inclusion Survey 2016-17.

⁸⁵ Budget speech.



	- 20%		18.2%	37.8
	- 40%		12.5%	2.9
+ 20%	- 20%		14.4%	17.4
+ 40%	- 40%		7.0%	-38.0
Base Case		1 year	19.1%	51.0
		2 years	16.0%	31.5
		3 years	13.7%	14.1
+ 20%	- 20%	1 year	12.0%	0.0
		2 years	10.1%	-15.6
		3 years	8.6%	-29.5
Switching Values ^a				
Costs		+	71.1%	
Benefits		-	41.7%	

EIRR = Economic Internal Rate of Return. ENPV = Economic Net Present Value.

^a Percentage change in cost and/or benefit streams to obtain an EIRR of 12%, i.e., economic viability

10. The EIRR of the project is driven by two factors reflected in the PDO indicators: outreach and income increase of targeted households. The sensitivity analysis of the project EIRR on these factors reflect that the project design is moderately robust and even if the PDO indicators of income and outreach are at 80% of target values, the project’s EIRR is 14.2%, slightly above the social discount rate of 12.0%. Table 3 presents the EIRR against achievement of PDO indicators.

Table 3: Economic Rate of Return vs. Achievement of PDO Indicators

		% Outreach Target			
		120%	100%	80%	60%
% Achievement of PDO Target on Incomes	120%	33.6%			
	100%		23.5%		
	80%			14.2%	
	60%				5.2%

11. *Impact on production and nutrition.* As shown in Table 4, the project will result in increased production of vegetables, fruits, livestock produce, and fish. The expected increase for fruits is 3.5% of present annual state production. The expected production increase for vegetables and fish are at around 1.1% and 4.5% of the present annual state production, respectively, and this increase is considerably higher at 19.0% for eggs. A specific market analysis for the different produce is yet to be carried out under the project. Given increasing demand, particularly in urban areas as a result of population increase and increases in income, it is safe to assume that incremental production resulting from the project will not depress producer prices. The expected increase in annual fish production of around 16.3 tonnes resulting from the project would substitute imported fish (with better quality local fish) and also contribute to GoCG’s attainment of the projected annual demand. The project is expected to not only contribute to overall improved incomes and food security in the state, but also to improved nutrition mainly through increased production and availability of nutrient-rich products, especially vegetables, meat, fish and eggs.

Table 4: Estimated project impact on production

Activity	Unit	Total Annual Production		Incremental Annual Production (%)	Total Annual State Production	'With Project' - Share of State Production
		Without Project	With Project			
Vegetable production	'000 tons	32.2	54.8	70.4%	6,890.5	0.8%
Fruit production	'000 tons	44.40	57.564	29.6%	2,542.2	2.3%



Egg production	million unit	156.0	360.0	130.8%	1,892.8	19.0%
Fish production	'000 tons	4.64	20.9	351.1%	469.0	4.5%

12. *Fiscal impact.* GoCG’s contribution to the project amounts to INR 3093.7 million (\$42.6 million) or 30% of total project costs (including beneficiary contribution and convergence). This corresponds to an average annual GoCG contribution over the project life of INR 515.6 million, representing around 0.32% of the average annual GoCG budget for agriculture and allied departments involved in the project (Agriculture, Horticulture, Animal Husbandry, Fisheries, Soil and Water Conservation etc.) over the period 2017/18–2020/21 (average budget of INR 161.028 million or \$2,268 million). In the medium- to long-term, a substantial positive fiscal impact of the project is expected, mainly due to: increased output, income and employment, also resulting in increased tax revenues; and multiplier effects due to increased disposable income of project beneficiaries, resulting in increased demand for goods and services.

13. **Financial Analysis.** The financial analysis has been carried out for the main productive activities supported by the project. Detailed crop budgets were prepared for major agriculture and horticulture crops for typical smallholder plot sizes, providing an overview of the production system including the key production parameters, farmer organizations, investments and marketing channels. Similar analyses were prepared for livestock production models (for goats, pigs and poultry) and fish production systems (small and large ponds). The main financial performance measures, including gross margin, net profit, return to family and total labor, and the return on investment are calculated for the Present, Future without Project (FWOP) and Future with Project (FWP) scenarios. If applicable, the Investment Costs including required Working Capital and Annual Depreciation were calculated.

14. The results show considerable increase in gross margin, net profit, and return to family and total labor for all production systems. The financial analysis suggests that the PDO indicator of a 30% increase in average real annual household income of the targeted households is achievable due to diversified or intensified economic activities promoted by the project. Table 5 shows the estimated incremental annual net income per household as well as the initial investment costs and the incremental annual costs of intermediate inputs (working capital requirements) for the main productive activities supported by the project. It is expected that the financial analysis will be periodically updated as an integral part of the project’s monitoring and evaluation system and as an input into the project evaluation at mid-term and completion stages.

Table 5: Overview of Financial Analysis of Productive Activities Supported by the Project

Activity	HHs supported	Annual Net Income			Incremental intermediate inputs	Investments per household
		WoP	WP	Increase		
Private Orchard	2,050	121,134	179,254	58,120	16,086	100,000
Backyard poultry	150,000	11,483	35,190	23,708	25,938	7,000
Goat breeding	1,800	5,194	21,904	16,710	4,723	20,000
Goat rearing	60,000	12,164	18,778	6,614	2,460	30,000
Pig breeding	100	12,466	71,653	59,187	21,306	35,000
Fishponds – private	15,000	11,400	58,491	47,091	36,965	4,000
Fishponds – community	250	5,238	54,101	48,863	49,896	104,000
Agriculture – Kharif	180,000	7,869	14,964	7,095	931.6	\a
Agriculture - Kharif + Rabi	57,150	34,143	56,494	22,351	1,476.9	

\a Investments are not built into the farm models but are covered under other project interventions such as NRM, improved soil health etc.



ANNEX 6: Green House Gas Estimation and Climate Co-Benefits

Part A: Climate Co-Benefits

1. The project presents several opportunities to generate climate co-benefits, both for adaptation and mitigation, and has a strategy for reducing GHGs. The project entails generation of co-benefits at multiple stages under various components: (a) Community Empowerment and Institutional Strengthening; (b) Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems; (c) Value Addition and Market Access; (d) COVID-19 Economic Recovery Response; (e) Project Management, Monitoring and Knowledge.

2. The Table 1 below sets out the climate vulnerability context; lists the project’s intent and statement of purpose for addressing climate vulnerability; and outlines an explicit link with the project activities. Table 2 provides component/sub-component-wise key activities that will have direct and/or indirect climate co-benefits. In addition, Part B offers a detailed analysis of the GHG impact, based on project interventions.

Table 1: Climate Vulnerability Context, Project’s Intent and Link to Project Activities

Climate vulnerability context	<p>Chhattisgarh, a poverty hotspot and home to large tribal populations, is one of the top two climate hotspot states in India and is predicted to experience a decline in living standards of more than 9%. The two districts of Durg and Raj Nandagaon are also in the top 10 climate hotspot districts in the country.⁸⁶ Within the state, the pattern of vulnerability of Chhattisgarh districts to climate change has shown that generally the South Western and North Eastern districts are the most vulnerable to climate change. Notably high poverty (55-80%) and malnourishment (34-45% among children) in the targeted southern districts (refer Figure 3), suggest that targeted areas are highly vulnerable to climate shocks. Further, the Chhattisgarh State Action Plan for Climate Change, has noted that agriculture and allied sectors, forests and biodiversity, and water resources are sectors facing immediate and direct impact of climate change.</p> <p>Targeted districts are also highly water-stressed (<6% irrigation, see Figure 2). High dependence of large populations on rainfed subsistence agriculture and livestock renders the local community highly vulnerable to climate shocks, especially under changing patterns of erratic rainfall in the state. FCDO’s Action on Climate Change (ACT) study reveals that state incidences of drought, hailstorms, cyclones and flash floods have risen, impacting crop productivity in different agro-climatic zones. The study notes that a shift in the sowing season of <i>kharif</i> crops in the last three to four years due to delay in onset of the south-west monsoon and has impacted paddy production negatively and increased distress migration.</p> <p>The Bank’s South Asia’s Hotspots analysis warns that risks associated with changes in average weather are expected to increase over time when combined with poverty, lack of education, and poorly maintained infrastructure – all Chhattisgarh characteristics. Given uncertain shifts in weather and climatic events, small and marginal farmers, and project beneficiaries, will be unduly exposed to risk and farm distress. Adaptation and mitigation approaches have been mainstreamed into the project design to increase resilience against such risks. Project design was informed by a social analysis of the state which analyzed climate data, including changing rainfall pattern.</p>
Statement of purpose	<p>The project aims to improve income opportunities and the availability of nutritious foods in targeted households of Chhattisgarh’s most vulnerable tribal dominated areas in southern districts, through adoption of a developmental approach centered on diversified livelihoods and foods, resource efficient-growth and IFS. The approach in itself is a step toward shifting the state’s attention to a climate-resilient future, especially for its vulnerable tribal population. The approach is also expected to reduce, limit, or sequester GHG emissions to reduce the risk of climate change.</p>

⁸⁶ Mani, Muthukumara, Sushenjit Bandyopadhyay, Shun Chonabayashi, Anil Markandya, and Thomas Mosier.2018. *South Asia’s Hotspots: The Impact of Temperature and Precipitation Changes on Living Standards*, South Asia Development Matters, Washington, DC, World Bank.



Link to project activities	The project aims to:
	a) build community institutions to plan, develop and monitor VDPs including adaptation to changing climate risks;
	b) empower local communities to adopt improved practices for food and nutrition security especially for vulnerable sections i.e., women and children under climate shocks;
	c) promote climate-resilient agricultural technologies and CSA practices, following a strategic resource efficient agriculture production system approach that includes INRM mainly soil and water, nutrition-supportive IFS focusing on agroforestry, livestock, aquaculture; and value addition to reduce food wastage;
	d) invest in mitigation measures to reduce the impact of GHG emissions in agriculture production systems particularly through energy efficient tillage, improved livestock feed management and manure management in <i>gauthans</i> , and accelerated use of renewable energy-based systems in water lifting, processing, storage, rural markets;
	e) promote agro-biodiversity through investments in conservation of local seeds and planting materials through village seed banks and use of drought-tolerant seeds; and strengthen institutional capacities for increased and timely availability of quality climate smart inputs;
	f) build capacities, especially of vulnerable tribal population including women, towards adoption of climate-resilient practices, to enhance household nutrition security and resilience against climate shocks;
	g) strengthen capacity of participating Directorates to identify and proactively ensure that preparation, selection and approval of VDPs and annual implementation plans are climate-informed and screened; and
	h) Sensitize value chain players to invest in climate-resilient technologies and state services.

Table 2: Component-wise Adaptation and Mitigation Climate Co-Benefits

Activities	Adaptation Actions	Mitigation Actions
Component 1: Community Empowerment and Institutional Strengthening (\$14.9m)		
Sub-component 1.1: Participatory Village Planning and Community Institution Building (\$12.3m)		
<ul style="list-style-type: none"> Project awareness among targeted communities through village entry activities that foster social capital development and rapport building. Preparation of integrated VDPs through participatory planning process to include climate resilient activities. Formation and/or capacity building of key community institutions to participate in project planning, implementation and leveraging of project investments for community and household benefits in adapting and adopting climate smart activities. 	<ul style="list-style-type: none"> Increased community awareness and information about local climate change impacts and associated livelihood risks. VDPs will be climate-informed and ensure that community resources allocated further climate-resilient investments, mainly among poor and vulnerable tribal households. Community institutions formed and strengthened for planning, community actions and quicker adoption of resilient technologies and practices, building community resilience to climate shocks. 	
Sub-component 1.2: Household Food Availability and Nutrition Practices (\$2.6m)		
<ul style="list-style-type: none"> Village level assessment for design of context-specific nutrition interventions. Technical assistance for nutrition SBCC Community resource persons (<i>Poshan sakhis</i>). Formative research, development of SBCC content and village level material, including SBCC tool kit for facilitation, training manuals and IEC material. Need-based initiatives to empower communities to identify and manage severely malnourished children. 	<ul style="list-style-type: none"> Household nutrition security plans informed by local knowledge on household level nutrition risks and vulnerabilities compounded under climate shocks. Improved behavior and actions of vulnerable households to adopt scientifically informed adaptation practices and activities for food and nutrition security. Door to door campaign, with IEC material on local nutrition security, mainly for vulnerable individuals, to increase community resilience against food and nutrition security risks. Communities adopting new practices to identify and manage local malnourishment challenges arising due to climate variabilities. 	



Activities	Adaptation Actions	Mitigation Actions
Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems (\$48.5m)		
Sub-Component 2.1 Community-Based Natural Resource Management (\$19.6m)		
<ul style="list-style-type: none"> Investments in INRM, include both land quality enhancement and rainwater harvesting activities. Energy efficient water harvesting, water lifting and farm level irrigation infrastructure. Soil health cards (180,000 farmers) and demonstration of soil nutrition management technology. 	<ul style="list-style-type: none"> Land leveling, energy efficient tillage, improved soil management, rainwater harvesting (small ponds) will reduce surface run off, reduce soil erosion, increase soil water retention capacity, improve ground water recharge and increase improved production, reducing climate vulnerability. Accelerated adoption of integrated soil nutrition management technologies and practices, such as legume-based crop rotation, green manuring, mulching, crop-biomass incorporation in soil, bio-inoculants etc. will improve soil productivity, thereby improving crop/tree productivity. 	<ul style="list-style-type: none"> Increased usage of energy efficient water lifting devices (solar/treadle pumps) will replace diesel pumps, reduce energy use in irrigation and lead to substantial GHG emission reductions. Judicious fertilizer application based on soil health card prescription has multifold benefits – reduced fertilizer use and increased use of organic manure will also improve soil-moisture holding capacity, reducing irrigation requirements, and protecting water bodies from run-off pollution. The existing carbon pool will improve through increased soil-carbon sequestration. Large scale demonstration of improved composting techniques (NADEP, vermi-composting, bio-digester) with reduced GHG emission
Sub-Component 2.2 Integrated Food and Nutrition-Supportive Agriculture (\$28.9m)		
<ul style="list-style-type: none"> Grants to community institutions as revolving funds to finance household level investments in productive assets and adoption of climate smart technologies and practices as per VDPs. Demonstrations of IFS and crop-specific models. Training and capacity building of producers including in CSA. Inputs for food production in <i>baadi</i> and open fields. Set up of village level input production units including climate smart inputs. Fodder development initiative. Community infrastructure at <i>gauthan</i> level for improved livestock feeding, manure management, climate smart storage, energy efficient tillage and farm operations Strengthening capacity of KVKs and government departments/agencies 	<ul style="list-style-type: none"> Access to finance will help accelerate adoption of climate smart technologies and practices at household level (by at least 240,000 farmers) At least 144,000 households will plant horticulture trees/crops in <i>baadi</i> enhancing adaptation to climate shocks and increasing local food supply. IFS will meet the critical input requirements of crop/soil, animal, fish systems, de-risking climate shocks through broadened and interlinked local production systems across agriculture, horticulture, fishery and livestock. Conserving biodiversity (local germplasm/variety crops) and introducing new cultivars (stress tolerant, biofortified etc.) will increase resilient crop production systems under climate shocks and contribute to local food and nutrition security. Empowering communities to conserve local biodiversity and storage of seeds in village seed banks will improve communities’ ability to adapt to climate change shocks. Strengthening local institutions for increased availability of climate smart technologies/inputs (seeds of local crop types, drought tolerant varieties, seed banks, integrated pest management 	<ul style="list-style-type: none"> Afforestation (plantations) and agroforestry on non-forested land that increase carbon stocks will further contribute to productive use of land by reducing topsoil loss. Resource efficient production systems through reduction in use of nitrogenous fertilizers and pesticides leading to improved soil health outcomes with lowered GHG emissions and improved soil carbon sequestration. Improved livestock management at 500 <i>gauthans</i> catering to at least 100,000 cattle with improved feeding practices and manure management, including bio-digestors; and



Activities	Adaptation Actions	Mitigation Actions
<p>with finance support to establish mother nurseries, brood hatcheries, units for bio-inoculants/ integrated pest management inputs; <i>baadi</i> model units; training and exposure visits of producers/collectors/ community cadres/project staff;</p> <ul style="list-style-type: none"> • Agro-biodiversity investments, mainly conservation of local seeds and planting materials through village seed banks and use of drought-tolerant seeds which will enable climate smart and energy efficient production systems. • Strengthening capacity of directorates of agriculture and horticulture and budget for scaling up seed production of pulses, millets, oilseeds and other underutilized crops; nurseries for horticulture and agroforestry saplings. • Supply of breeder seeds and revival of locally adapted seeds, demonstration of climate smart technologies/inputs, and preparation of economic and management models for <i>gauthans</i> through strengthened participation of local agriculture universities. 	<p>kits, horticulture and agroforestry saplings) will improve access to inputs and accelerate climate smart technology adoption among local communities at scale.</p> <ul style="list-style-type: none"> • Provision of more effective knowledge and advisory support for adoption of CSA will improve climate resilience of farmers. 	<p>improved goat/piggery/poultry rearing undertaken by approx. 62,000 households will reduce methane or other GHG emissions significantly.</p> <ul style="list-style-type: none"> • Reduction in energy use in aquaculture will impact GHG emission. • Energy efficient tillage, postharvest management, storage (solar pump) driven by custom hiring of farm equipment will reduce fossil fuel use, contributing to climate mitigation. • Accelerated adoption of improved package of practices including climate smart technologies will drive reduction of non-CO₂ GHG emissions from agricultural practices and technologies i.e., direct seeded rice, alternate wetting and drying in rice, improving water use efficiency.
<p>Component 3: Value Addition and Market Access (\$10.3m)</p>		
<p>Sub-Component 3.1 Value Addition for Nutrition (\$1.0m)</p>		
<ul style="list-style-type: none"> • Promotion of energy efficient postharvest infrastructure (primary processing, preservation, storage and packaging). • Training of nutri-entrepreneurs in energy efficient value addition practices in food processing. 	<ul style="list-style-type: none"> • Local value addition will increase dietary diversity, increased shelf life of food, and reduce food wastage thus and contribute to increased availability of nutritive food at household level thus supporting the households to overcome increasing food and nutrition security risks under climate shocks. • Increased capacity of local community on value addition technologies and practices will supporting the community to cope up with food/nutrition risks under climate shocks. 	<ul style="list-style-type: none"> • Increased capacity of local entrepreneurs at village level and their access to energy- efficient processing technology will lead to accelerated adoption of solar dehydration technology and other renewable energy-based technologies in food processing including efficient cold storage. This will lead to reduced carbon emissions.
<p>Sub-Component 3.2 Value Addition and Market Access (\$9.3m)</p>		
<ul style="list-style-type: none"> • Capacity building of FPOs through TSAs on climate smart value chain development and climate-informed business plan development. • FPO business plans/investment proposals will be appraised for impact on climate change and build criteria 	<ul style="list-style-type: none"> • Efficiency gain in aggregation, processing and marketing through FPO groupings of small producers will help communities to adopt improved practices and systems to address and manage emerging climate change risks (production, processing, logistics and marketing). • Resource efficiency in agricultural activities/processes and climate smart value chains 	<ul style="list-style-type: none"> • Energy efficient and climate resilient postharvest, processing storage infrastructure and logistics at FPO levels i.e., solar-powered cold storage/equipment will improve energy efficiency



Activities	Adaptation Actions	Mitigation Actions
<p>including lowering GHG intensity in rating and approval calculations.</p> <ul style="list-style-type: none"> Farmer-level training and demonstration of climate-resilient postharvest technologies. Promotion of energy efficient postharvest infrastructure and technologies such as solar cold storage or solar-powered dryers (for food processing to reduce crop spoilage). Upgrading of rural market infrastructure and strengthening community capacities. 	<p>will inform climate-informed value-chain design such as multi-commodity approach, pre-identification of market players, and pre-contracting modalities in line productive alliance models and financing, enhancing communities' adaptation to climate shocks.</p> <ul style="list-style-type: none"> Increased farmer capacity in climate-resilient technologies and practices such as improved post-harvest practices, energy efficient primary processing and storage will improve their ability to adapt to climate shocks. Increased private sector awareness on climate shocks and increased private sector investment in energy efficient processing technologies 	<p>downstream, leading to an overall reduction in GHG emissions.</p> <ul style="list-style-type: none"> Energy efficient rural market infrastructure will improve energy efficiency downstream, leading to an overall reduction in GHG emissions.
<p>Component 4: COVID-19 Economic Recovery Response (\$15.1m)</p>		
<ul style="list-style-type: none"> Providing re-skilling and short-term work opportunities and restoring local livelihoods to returnee migrants around livestock management and natural resource management through entrepreneurship. Off-farm and non-farm entrepreneurial activities. Agriculture and horticulture input/production mini-kits. Wage generating land and water conservation-based activities. 	<ul style="list-style-type: none"> Increased capacity of local community and improved local job opportunities (off farm/non-farm) will enhance communities' adaptation to climate shocks. Adoption of critical agri-/horti- production kits (seeds/planting material and other support material like organic composting) will enhance local food and nutrition security. Besides income security, land and water conservation activities (small ponds, rain-water harvesting, land levelling, solar pumps etc.) will contribute to reduced soil erosion, increased ground water recharge and irrigation, improving local food production. 	
<p>Component 5: Project Management, Monitoring and Knowledge (\$11.2m)</p>		
<p>Sub-Component 5.1: Project Monitoring and Management (\$10.7m)</p>		
<ul style="list-style-type: none"> Baseline survey to capture existing level of availability, access, awareness and adoption of climate-resilient technologies and practices among project beneficiaries. Concurrent process monitoring and community-based participatory monitoring to capture adoption of climate-resilient practices to inform implementation. ICT-enabled customized MIS and geographic information system-based input-output monitoring system to generate monthly progress reports and indicators on climate risk mitigation activities and inform SPMU/ DPMU and BPIU decision-makers. Stand-alone studies to be commissioned on relevant climate change aspects. 	<ul style="list-style-type: none"> SPMU will contract climate change experts to advise on adoption of adaptation and mitigation measures for all project activities and implement required training. Climate Risk Screen Tool will be integrated throughout project implementation to identify risks to the state in the agricultural sector and develop appropriate adaptation and crisis response plans. Early warning systems will be put in place to include climate impacts/factors and provide guidance/alerts for farmers to inform and adapt their crop choices and production decisions. 	<ul style="list-style-type: none"> The project will focus on education, training, capacity-building and awareness-raising on climate change mitigation and initiate mitigation research (GHG emission in a few commodity value chains will be mapped to inform future interventions).



Activities	Adaptation Actions	Mitigation Actions
Sub-Component 5.2 Knowledge Management and State Capacity (\$0.5m)		
<ul style="list-style-type: none"> • Training and visits to other states/regions for staff of participating line departments to study potential of climate resilient technologies and practices. • Regular policy consultations with key state decision-makers to share learning from project implementation and inform decision-makers regarding policy support required to mainstream climate-resilient plans, processes and practices. 	<ul style="list-style-type: none"> • SPMU will consist of policy experts who shall advocate and influence policy changes to support the state’s climate-resilient agriculture. • National/global best practices on climate change adaptation technology/practices and stakeholder capacity building for accelerated adoption of such technologies/practices will be introduced. 	<ul style="list-style-type: none"> • National/global best practices on climate change mitigation technology and stakeholder capacity building for accelerated adoption of such technologies/ practice will be introduced.

Part B: “Green House Gas Accounting”

An ex-ante GHG estimating analysis was carried out to ascertain the impact of project investments using the Food and Agriculture Organization on the United Nations Ex-Ante Carbon balance Tool (EX-ACT) which quantifies the net carbon balance in terms of tons of CO₂ equivalent (tCO₂e), resulting from GHGs emitted or sequestered, as a result of project implementation compared to the ‘without-project’ scenario. The analysis was conducted in accordance with safeguards requirements and will help lower the project’s carbon footprint, bringing both adaptation and mitigation benefits.

Project characteristics. The project implementation phase is 6 years and the capitalization phase is assumed to be 14 years, resulting in a 20-year implementation period which is common in the use of EX-ACT and aligned with the economic and financial analysis project period. During project consultations, it was assumed that the main benefits would come from adopting an IFS approach⁸⁷. This is aligned with the landscape approaches, conservation agriculture principles⁸⁸ and globally promoted IFS for sustainable development. Furthermore, forest fringe areas offer additional opportunities for capitalizing natural resources, including rich biodiversity and intensifying production systems for year-round production of nutritive food for local consumption. The project will increase crop diversification and climate adaptive agriculture. By reclaiming degraded land and improving soil fertility, the project will expand and intensify production systems and improve productivity. Improved natural resource management and better crop planning will help optimize the use of agro-chemical inputs and their associated costs, thereby reducing the cost of production (see Table 3). In line with doubling farmers income, the project will promote value chains through FPOs, catering to local and distant markets. The ex-ante GHG emission estimates are based on detailed crop budgets prepared for key intervention areas and their impact was analyzed over a 20-year period.

Table 3: Indicative improvement in management practices of production areas

	WoP (ha)	WiP (ha)	Remarks/Assumptions
Fruits	0	500	Improved management in 70% of farm areas through improved agronomics, no residue/biomass burning, water and manure
Vegetables	4572	11430	

⁸⁷ focused on soil and water management integration of improved composting for building soil health, diversified *baadi*, promotion of animal husbandry with improved feeding practices, one health management practices, manure management etc., agroforestry systems and a range of climate smart agriculture practices.

⁸⁸ <http://www.fao.org/conservation-agriculture/en/>



Pulses and oil seeds	4572	9144	management.
Cereals	24,000	24,000	

For most crops, it is estimated that use of organic inputs and adoption of efficient application practices, would result in balanced usage of fertilizers, particularly N, P and K, and a decrease in the use of agrochemicals, thereby reducing GHG emissions (see Table 4). Similarly, in the dairy value chain activities improved feeding practices in at least 60% of the herd, would reduce net GHG emissions. Further, the bio-waste produced in *gauthans* will be converted into manure and other indigenous pest and nutrient management products supporting agriculture production. In the case of goat, pig and other small ruminant value-chains, it is estimated that there will be an increase in animal population due to reduction in mortality and improvement in management practices. Therefore, this will lead to an insignificant increase in GHG emission contributing to net GHG emission under the project scenario.

Table 4: Assumptions for agriculture inputs usage under CHIRAAG

Description	Unit	Without project	With project
Urea (Urea has 46.7% of N)	tonnes of N per year	2299	1889
Other N-fertilizers	tonnes of N per year	288	144
N-fertilizer in irrigated rice	tonnes of N per year	378	284
Sewage	tonnes of N per year	0	944
Compost	tonnes of N per year	0	196
Phosphorus	tonnes of P ₂ O ₅ per year	219	659
Potassium	tonnes of K ₂ O per year	308	822
Herbicides	tonnes of active ingredient per year	0.6	1.2
Insecticides	tonnes of active ingredient per year	15.4	3.4
Fungicides	tonnes of active ingredient per year	8.5	17.1

Based on the above key assumptions, it is estimated that the project would result in decreased emissions of -686259 tCO₂eq when compared to a normal baseline scenario over the next 14 years. This is equivalent to an annual decrease in GHG emissions/hectare/year of -0.6 tCO₂eq and consequently, a moderate impact on GHG emissions (see Table 5 below and Graph 1 in page 22).

Table 5: Annual and Total GHG Emissions with and without project and balance (tCO₂eq)

Project activities	Over the economic project lifetime (tCO ₂ eq)			Annual average (tCO ₂ eq/year)		
	GHG emissions (1)	Gross emissions (2)	Net GHG emissions (2-1)	GHG emissions (3)	Gross emissions (4)	Net GHG emissions (4-3)
Land use Changes Other LUC	0	-894,378	-894,378	0	-44,719	-44,719
Agriculture						
Annual	0	-698,737	-698,737	0	-34,937	-34,937
Perennial	-575,923	-801,775	-225,852	-28,796	-40,089	-11,293
Grassland and Livestock						
Livestock	0	998,447	998,447	0	49,922	49,922
Inputs	616,048	615,854	-194	30,802	30,793	-10
Total	290,739	-497,143	-787,882	14,537	-24,857	-39,394



ANNEX 7: Project Map



India

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG) Design Report

Annex 2: CI Logframe

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

Modified results framework of CHIRAAG incorporating IFAD's core indicators

Results Framework

COUNTRY: India

Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project

Project Development Objectives(s)

The PDO of the proposed project is “to improve income opportunities and the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Outreach								
Persons receiving services promoted or supported by the project (Number)			WB: 4,020 IFAD: 2,680 Total: 6,700	WB: 31,920 IFAD: 21,280 Total: 53,200	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 159,600 IFAD: 106,400 Total: 266,000	WB: 199,200 IFAD: 132,800 Total: 332,000	WB: 240,000 IFAD: 160,000 Total: 400,000
Of which women (Number)			WB: 201 IFAD: 134 Total: 334	WB: 4,788 IFAD: 3,200 Total: 7,988	WB: 34,860 IFAD: 23,240 Total: 58,100	WB: 63,840 IFAD: 42,560 Total: 106,400	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 120,000 IFAD: 80,000 Total: 200,000
Of which, SCs and STs (Number)			WB: 900 IFAD: 1,880 Total: 2780	WB: 9,600 IFAD: 14,890 Total: 16,000	WB: 37,500 IFAD: 46,480 Total: 62,500	WB: 72,000 IFAD: 74,480 Total: 120,000	WB: 105,000 IFAD: 92,960 Total: 175,000	WB: 126,000 IFAD: 112,000 Total: 210,000
Of which, youth (15-24 years) (Percentage)			Total: 10%	Total: 10%	Total: 20%	Total: 20%	Total: 20%	Total: 20%
Estimated corresponding total number of households members (Number)			WB: 18,090 IFAD: 11,524 Total: 29,614	WB: 143,640 IFAD: 91,504 Total: 235,144	WB: 448,200 IFAD: 285,520 Total: 733,720	WB: 718,200 IFAD: 457,520 Total: 1,175,720	WB: 896,400 IFAD: 571,040 Total: 1,467,440	WB: 1,808,000 IFAD: 688,000 Total: 2,496,000
Of which, SCs and STs (Number)			WB: 4,050 IFAD: 8,084	WB: 43,200 IFAD: 64,027	WB: 168,750 IFAD: 199,864	WB: 324,000 IFAD: 320,264	WB: 472,500 IFAD: 399,728	WB: 567,000 IFAD: 481,600

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
			Total: 12,134	Total: 107,227	Total: 368,614	Total: 644,264	Total: 872,228	Total: 1,048,600
Corresponding number of households reached (Number)			WB: 4,020 IFAD: 2,680 Total: 6,700	WB: 31,920 IFAD: 21,280 Total: 53,200	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 159,600 IFAD: 106,400 Total: 266,000	WB: 199,200 IFAD: 132,800 Total: 332,000	WB: 240,000 IFAD: 160,000 Total: 400,000
Of which, SCs and STs (Number)			WB: 900 IFAD: 1,880 Total:	WB: 9,600 IFAD: 14,890 Total: 16,000	WB: 37,500 IFAD: 46,480 Total: 62,500	WB: 72,000 IFAD: 74,480 Total: 120,000	WB: 105,000 IFAD: 92,960 Total: 175,000	WB: 126,000 IFAD: 112,000 Total: 210,000
To intensify and diversify sources of income, and to improve the availability of nutritious foods								
Beneficiary households with intensified and diversified sources of income (Number)		0.00	0.00	WB: 3,600 IFAD: 2,400 Total: 6,000	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 48,000 IFAD: 32,000 Total: 80,000	WB: 75,000 IFAD: 50,000 Total: 125,000	WB: 108,000 IFAD: 72,000 Total: 180,000
Of which, among SCs and STs (Percentage)		0.00	40	50	60	60	60	60
Beneficiary households with increased number of food groups available at the household (Number)		0.00	0.00	WB: 3,600 IFAD: 2,400 Total: 6,000	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 48,000 IFAD: 32,000 Total: 80,000	WB: 75,000 IFAD: 50,000 Total: 125,000	WB: 108,000 IFAD: 72,000 Total: 180,000
Of which, women reporting improved quality of their diets (Number) (equivalent to CI 1.2.8.)				WB: 3,600 IFAD: 2,400 Total: 6,000	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 48,000 IFAD: 32,000 Total: 80,000	WB: 75,000 IFAD: 50,000 Total: 125,000	WB: 108,000 IFAD: 72,000 Total: 180,000
Of which, among SCs and STs (Percentage)		0.00	40	50	60	60	60	60
Farmers reached with agricultural assets or services (CRI, Number)		0.00	WB: 4,020 IFAD: 2,680 Total: 6,700	WB: 31,920 IFAD: 21,280 Total: 53,200	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 159,600 IFAD: 106,400 Total: 266,000	WB: 199,200 IFAD: 132,800 Total: 332,000	WB: 240,000 IFAD: 160,000 Total: 400,000

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Farmers reached with agricultural assets or services - Female (CRI, Number)		0.00	WB: 201 IFAD: 134 Total: 334	WB: 4,788 IFAD: 3,200 Total: 7,988	WB: 34,860 IFAD: 23,240 Total: 58,100	WB: 63,840 IFAD: 42,560 Total: 106,400	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 120,000 IFAD: 80,000 Total: 200,000
Of which, SCs and STs (Number)		0	WB: 900 IFAD: 1,900 Total: 2,800	WB: 9,600 IFAD: 15,000 Total: 24,600	WB: 37,500 IFAD: 46,500 Total: 84,000	WB: 72,000 IFAD: 74,500 Total: 146,500	WB: 105,000 IFAD: 93,000 Total: 198,000	WB: 126,000 IFAD: 112,000 Total: 238,000
Of which, youth (15-24 years) (Percentage)			Total: 10%	Total: 10%	Total: 20%	Total: 20%	Total: 20%	Total: 20%

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Component 1: Community empowerment and institutional strengthening								
Village development plans (Number)		0.00	WB: 150 IFAD: 100 Total: 250	WB: 500 IFAD: 350 Total: 850	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500
Beneficiary livelihood groups which have at least 50 percent membership from SC/ST households (Number)		0.00	WB: 66 IFAD: 40 Total: 100	WB: 150 IFAD: 105 Total: 255	WB: 500 IFAD: 250 Total: 750	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000.00 IFAD: 500 Total: 1,500	WB: 1,000.00 IFAD: 500 Total: 1,500
Beneficiary livelihood groups which have at least 25 percent women members (Number) (Number)		0.00	WB: 33 IFAD: 20 Total: 53	WB: 90 IFAD: 65 Total: 155	WB: 350 IFAD: 175 Total: 525	WB: 800 IFAD: 400 Total: 1,200	WB: 900 IFAD: 450 Total: 1,350	WB: 1,000 IFAD: 500 Total: 1,500

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
IFS operationalized which include nutrition related SBCC sessions (Percentage)		0.00	0.00	Total: 20	Total: 30	Total: 50	Total: 75	Total: 85
Component 2: Diversified, Resilient and Nutrition Supportive Food and Agriculture Systems								
Beneficiary households supported with sustainable water management and soil improvement practices (Number)		0.00	WB: 300 IFAD:200 Total: 500	WB: 10,275 IFAD: 6,850 Total: 17,125	WB: 21,375 IFAD: 14,250 Total: 35,625	WB: 22,050 IFAD: 14,700 Total: 36,750	WB: 22,050 IFAD: 14,700 Total: 36,750	WB: 22,050 IFAD: 14,700 Total: 36,750
Increase in land area under production of more nutritious crops among beneficiary households (Percentage)		0.00	Total: 10	Total: 10	Total: 20	Total: 20	Total: 30	Total: 30
Beneficiary individuals which have adopted resilient and improved technologies and practices (Number) (equivalent to CI 3.2.2 Number of persons reporting adoption of environmentally sustainable and climate resilient technologies and practices)		0.00	0.00	WB: 6,750 IFAD: 4,500 Total: 11,250	WB: 36,900 IFAD: 24,600 Total: 61,500	WB: 57,600 IFAD: 38,400 Total: 96,000	WB: 81,000 IFAD: 54,000 Total: 135,000	WB: 90,000 IFAD: 60,000 Total: 150,000
Of which, women beneficiaries (Number)		0.00	0.00	WB: 1,013 IFAD: 675 Total: 1,688	WB: 7,380 IFAD: 4,920 Total: 12,300	WB: 14,400 IFAD: 9,600 Total: 24,000	WB: 24,300 IFAD: 16,200 Total: 40,500	WB: 27,000 IFAD: 18,000 Total: 45,000
Number of groups supported to sustainably manage natural resources and climate resilient risks (CI 3.1.1 added)		0.00	WB: 150 IFAD: 100 Total: 250	WB: 500 IFAD: 350 Total: 850	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Beneficiary households adopting at least two activities of integrated farming systems (Percentage)		0.00	0.00	Total: 10.00	Total: 15.00	Total: 20.00	Total: 25.00	Total: 30.00
Beneficiary individuals with improved Badis- backyard garden production (Number) (equivalent CI. 1.1.8 Number of persons provided targeted support to improve nutrition)		0.00	WB: 2,700 IFAD: 1,800 Total: 4,500	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 73,800 IFAD: 49,200 Total: 123,000	WB: 144,000 IFAD: 96,000 Total: 240,000	WB: 144,000 IFAD: 96,000 Total: 240,000	WB: 144,000 IFAD: 96,000 Total: 240,000
Of which, women beneficiaries (Number)		0.00	WB: 810 IFAD: 540 Total: 1,350	WB: 9,000 IFAD: 6,000 Total: 15,000	WB: 36,900 IFAD: 24,600 Total: 61,500	WB: 86,400 IFAD: 57,600 Total: 144,000	WB: 86,400 IFAD: 57,600 Total: 144,000	WB: 86,400 IFAD: 80,000 Total: 146,000
Of which, youth (15-24 years) (Percentage)			Total: 10%	Total: 10%	Total: 20%	Total: 20%	Total: 20%	Total: 20%
Component 3: Value addition and access to markets								
Common Hiring Centers supported with value addition and processing infrastructure (Number)		0.00	WB: 53 IFAD: 37 Total: 90	WB: 175 IFAD: 125 Total: 300	WB: 350 IFAD: 235 Total: 585	WB: 350 IFAD: 235 Total: 585	WB: 350 IFAD: 235 Total: 585	WB: 350 IFAD: 235 Total: 585
Farmer Producer Organization established, with business plans, and financing (Number) (equivalent to CI 2.1.3 Number of rural producers' organizations supported)		0.00	WB: 1 IFAD: 1 Total: 2	WB: 6 IFAD: 4 Total: 10	WB: 17 IFAD: 13 Total: 30	WB: 25 IFAD: 17 Total: 42	WB: 28 IFAD: 22 Total: 50	WB: 28 IFAD: 22 Total: 50
Farmer Producer Organizations directly engaged in aggregation, grading, and/or primary		0.00	0.00	0.00	WB: 6 IFAD: 4 Total: 10	WB: 11 IFAD: 9 Total: 20	WB: 14 IFAD: 11 Total: 25	WB: 14 IFAD: 11 Total: 25

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
processing (Number) (equivalent to CI 2.2.5 Number of rural producers' organizations reporting an increase in sales)								
Market linkage partnerships established (Number)		0.00	WB: 1 IFAD: 1 Total: 2	WB: 4 IFAD: 4 Total: 8	WB: 4 IFAD: 4 Total: 8	WB: 5 IFAD: 5 Total: 10	WB: 10 IFAD: 10 Total: 20	WB: 10 IFAD: 10 Total: 20
Component 4: Project Monitoring And Management, Knowledge Management And State Capacity								
Partnerships with knowledge organizations (Number)		0.00	Total: 1	Total: 2	Total: 3	Total: 3	Total: 3	Total: 3
Project related grievances registered and resolved (Percentage)		0.00	100	100	100	100	100	100
Decision Support System for Agriculture Department established (Yes/No)		No	No	Yes	Yes	Yes	Yes	Yes
Policy note developed on promoting and financing Farmer Producer Organizations (Yes/No) (equivalent to CI Policy – Number of new policy proposed to policy makers for approval)		No	No	No	Yes	Yes Number: 1	Yes	Yes
Number of policy relevant knowledge products completed (CI Policy)					1	1	1	1

India

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG) Design Report

Annex 3: Logframe

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)

Logical Framework

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Outreach	1 Persons receiving services promoted or supported by the project				Project progress reports from MIS	Annual	PMU	Project targeting strategy promotes participation of women and poor households among ST and SC population
	Females	0	58100	200000				
	Males	0	108500	200000				
	Young	0	16600	40000				
	Not Young	0	149400	360000				
	Indigenous people	0	62500	210000				
	Total number of persons receiving services	0	166000	400000				
	1.b Estimated corresponding total number of households members				Impact evaluation and outcome surveys	Annual	PMU	
	Household members	0	733720	2496000				
	1.a Corresponding number of households reached				Project progress reports from MIS	Annual	PMU	
Households	0	166000	400000					
Development Objective Improve income opportunities and the consumption of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh	No of Beneficiary households with intensified and diversified sources of income				Impact evaluation and outcome surveys	Annual	PMU	No major climate-related shocks. Institutional capacity for project implementation and sustainability.
	ST and SC Households		22500	108000				
	Total Households		37500	180000				
	1.2.8 Women reporting minimum dietary diversity (MDDW)				Impact evaluation and outcome surveys	Annual	PMU	
	Women (number)		37500	180000				
	Households (number)		37500	180000				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Household members		165750	795600				
	Indigenous		22500	108000				
	Non-indigenous		15000	72000				
Outcome Operational and inclusive community organizations for sustainable natural resources management and nutrition awareness	Beneficiary livelihood groups which have at least 50 percent membership from SC/ST households				Project monitoring	Annual	PMU	Communities willing to participate
	Number of groups	0	750	1500				
	Beneficiary livelihood groups which have at least 25 percent women members				Project monitoring	Annual	PMU	
	Number of Groups	0	525	1500				
Output Community organizations formulate their village development plans	Village development plans				Project monitoring	Annual	PMU	Institutional and policy framework supports community level planning
	Number of VDP	0	1500	1500				
Output Women and girls with improved knowledge about nutrition	1.1.8 Households provided with targeted support to improve their nutrition				Project Monitoring	Annual	PMU	
	Total persons participating	0	123000	240000				
	Males	0	61500	94000				
	Females	0	61500	146000				
	Households	0	123000	240000				
	Household members benefitted	0	543660	1060800				
	Indigenous people	0	73800	144000				
	IFS operationalized which include nutrition related SBCC sessions				Project monitoring	Annual	PMU	
	Percentage of sessions	0	30	85				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Outcome More sustainable and diversified farm production leading to climate resilience and increased availability of more nutritious foods.	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices				Annual Outcome Survey	Annual	PMU	Package of Practices promoted in a participatory manner and taking into consideration food security, agro-ecology, climate variability and cost of production
	Males	0	49200	105000				
	Females	0	12300	45000				
	Indigenous people	0	36900	90000				
	Non-Indigenous people	0	24600	60000				
	Households	0	61500	150000				
Output Improved and more sustainable management of water resources, soil , agro-biodiversity and climate risks	3.1.1 Groups supported to sustainably manage natural resources and climate-related risks				Project monitoring	Annual	PMU	Timely provision of training and inputs to producers
	Groups supported	0	1500	1500				
	Beneficiary households supported with sustainable water management and soil improvement practices				Project monitoring	Annual	PMU	
	Households	0	35625	36750				
Output Households supported with nutrition sensitive agriculture	1.1.8 Households provided with targeted support to improve their nutrition				Project monitoring	Annual	PMU	Awareness developed among beneficiary households especially women to grow and consume nutritious foods
	Males	0	61500	94000				
	Females	0	61500	146000				
	Households	0	123000	240000				
Outcome Increased value addition and market access for Rural Producers' Organizations	2.2.5 Rural producers' organizations reporting an increase in sales				Annual Outcome Survey	Annual	PMU	Agri-business interested in partnerships with small scale producers
	Number of Rural POs	0	10	25				
Output Farmer Producer Organization established, with business plans, and financing	2.1.3 Rural producers' organizations supported				Annual Outcome Survey	Annual	PMU	Service centres able to provide useful services for farmers
	Rural POs supported	0	30	50				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Output Common Hiring Centers supported with value addition and processing infrastructure	Number of custom hiring centres established				Project monitoring	Annual	PMU	Potential management capacity for FPOs exists at the community level.
	Number	0	585	585				
Output Market linkage facilitated	Number of Market linkage partnerships established				Project monitoring	Annual	PMU	Sufficient number of market players interested in entering in long term partnership with Farmer Producers Organizations
	Number	0	8	20				
Output State policy for Farmer Producers' Organizations formulated	Policy 1 Policy-relevant knowledge products completed				Project monitoring	Annual	PMU	Formulation of the policy is consultative and evidence based
	Number		0	1				
Outcome Households affected by Covid recover their livelihoods	Number of households reporting that their income and assets recovered to pre-Covid level				Annual Outcome Survey	Annual	PMU	Potential exists to create livelihood diversification in rural areas.
	Households	0	82000	82000				
Output Households supported to recover from Covid 19 related loss of livelihood	No of persons supported to recover from COVID related shocks				Project progress reports from MIS	Annual	PMU	Covid-19 pandemic subsidies to allow economic recovery
	No. of people		117000	117000				
	Males		82000	82000				
	Females		35000	35000				
	Indigenous people		70200	70200				
	Youth		35000	35000				

India

**Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)
Design Report**

Annex 4: Integrated Project Risk Matrix (IPRM)

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

Overall Summary

Risk Category / Subcategory	Inherent risk	Residual risk
Country Context	Substantial	Moderate
<i>Political Commitment</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Governance</i>	<i>Moderate</i>	<i>Low</i>
<i>Macroeconomic</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Fragility and Security</i>	<i>Substantial</i>	<i>Moderate</i>
Sector Strategies and Policies	Substantial	Moderate
<i>Policy alignment</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Policy Development and Implementation</i>	<i>Moderate</i>	<i>Low</i>
Environment and Climate Context	High	Substantial
<i>Project vulnerability to environmental conditions</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project vulnerability to climate change impacts</i>	<i>High</i>	<i>Substantial</i>
Project Scope	Low	Low
<i>Project Relevance</i>	<i>Low</i>	<i>Low</i>
<i>Technical Soundness</i>	<i>Low</i>	<i>Low</i>
Institutional Capacity for Implementation and Sustainability	High	Substantial
<i>Implementation Arrangements</i>	<i>High</i>	<i>Substantial</i>
<i>Monitoring and Evaluation Arrangements</i>	<i>Substantial</i>	<i>Moderate</i>
Project financial Management	Substantial	Moderate
<i>Project Organization and Staffing</i>	<i>Moderate</i>	<i>Low</i>
<i>Project Budgeting</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project Funds Flow/Disbursement Arrangements</i>	<i>High</i>	<i>Substantial</i>
<i>Project Internal Controls</i>	<i>Moderate</i>	<i>Low</i>
<i>Project Accounting and Financial Reporting</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project External Audit</i>	<i>Moderate</i>	<i>Low</i>
Project Procurement	High	Substantial
<i>Legal and Regulatory Framework</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Accountability and Transparency</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Capability in Public Procurement</i>	<i>High</i>	<i>Substantial</i>
<i>Public Procurement Processes</i>	<i>High</i>	<i>Substantial</i>
Environment, Social and Climate Impact	Substantial	Moderate
<i>Biodiversity Conservation</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Resource Efficiency and Pollution Prevention</i>	<i>Moderate</i>	<i>Low</i>
<i>Cultural Heritage</i>	<i>Moderate</i>	<i>Low</i>
<i>Indigenous People</i>	<i>Moderate</i>	<i>Low</i>

Risk Category / Subcategory	Inherent risk	Residual risk
<i>Labour and Working Conditions</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Community Health and Safety</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Physical and Economic Resettlement</i>		<i>No risk envisaged</i>
<i>Greenhouse Gas Emissions</i>	<i>Moderate</i>	<i>Low</i>
<i>Vulnerability of target populations and ecosystems to climate variability and hazards</i>	<i>High</i>	<i>Substantial</i>
Stakeholders	High	Substantial
<i>Stakeholder Engagement/Coordination</i>	<i>High</i>	<i>Substantial</i>
<i>Stakeholder Grievances</i>	<i>High</i>	<i>Substantial</i>
Overall	Substantial	Moderate

Country Context	Substantial	Moderate
Political Commitment	Substantial	Moderate
<p>Risk:</p> <p>The risk is substantial. The State Government adopts a centralized decision-making approach.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The project governance includes two levels: 1) a high-level Project Advisory Committee (PAC), chaired by Chief Secretary will provide the overall project oversight and policy guidance; 2) a Project Steering Committee (PSC) chaired by the Agriculture Production Commissioner (APC) will be responsible for approving and reviewing project annual budgets, work plans, physical and financial progress, and driving the inter-departmental coordination and convergence. These two levels of project governance would ensure that the project is fully aligned with State policies and contributing to their implementation.</p>		
Governance	Moderate	Low
<p>Risk:</p> <p>The risk is moderate. Chhattisgarh ranks 4th out of 18 big states in India on the Good Governance Index 2019. Chhattisgarh ranks among the top 3 big states in agriculture and allied sectors; social welfare and development; judicial and public security.</p> <p>Good Governance Index through 10 sectors and 50 indicators, measures delivery of “good governance” to citizens by way of delivery of essential services to citizens. These services include education, healthcare, economic growth, environmental protection, access to legal protection and judicial services.</p>	Moderate	Low
<p>Mitigations:</p> <p>Project is building robust set up for fiduciary management and M&E; oversight by concerned departments; and grievance redress mechanism.</p>		
Macroeconomic	Substantial	Moderate

<p>Risk:</p> <p>Risk is Substantial. State finances are partially affected by the burden of the pandemic and economic slowdown, where lockdowns are still implemented to contain the spread of the Covid19. This is likely to impact the State Government's timely and full release of funds to the projec</p>	Substantial	Moderate
<p>Mitigations:</p> <p>In addition to CHIRAAG, the WB is financing Chhattisgarh Public Financial Management and Accountability Program. This should ensure that the release of funds to the project is conducted as per procedures for externally aided projects which the State Govt will comply with as part of the financial management and accountability programme.</p>		
Fragility and Security	Substantial	Moderate
<p>Risk:</p> <p>The risk is moderate. The districts most severely hit by LWE are located in the Southern part of the State and these are the districts that will be covered by WB financing. None of the districts to be covered by IFAD financing are LWE affected.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The project follows a community driven and inclusive approach to development which has proved successful in areas affected by high inequality and conflict. The critical element of the approach is the decentralized implementation and empowerment of local village organizations to implement priority activities identified in a fully consultative manner.</p>		
Sector Strategies and Policies	Substantial	Moderate
Policy alignment	Substantial	Moderate
<p>Risk:</p> <p>The main project risk from ongoing policy initiatives relates to potential changes to data privacy and protection. Activities directly or indirectly supported by this project collect personal data, i.e. name, age, ID number, gender, cell phone number, which could be used to identify an individual. Statistical data collection is governed by the Data Collection Act of 2008, GoI which contains provisions to guarantee respondents confidentiality. A Personal Data Protection Bill is currently under preparation. The implications of the Bill are not clear yet</p>	Substantial	Moderate
<p>Mitigations:</p> <p>Should the Bill be approved, the Bank and DoAB will conduct a technical analysis of the potential impact of the effectiveness of the Bill on project design and discuss any modifications that may be needed.</p>		
Policy Development and Implementation	Moderate	Low

<p>Risk:</p> <p>The risk is moderate. The project fully operationalizes policies developed by 1) State Govt such as NGGB, Chief Minister Nutrition Scheme, and State Action Plan on Climate Change (SAPCC); 2) national Government such as National Forest Rights Act (FRA 2006), National Agroforestry Policy (NAF 2014). The State currently does not have a policy for Farmer Producer Organizations.</p>	Moderate	Low
<p>Mitigations:</p> <p>One policy deliverable of the project is the formulation of a state policy for Farmer Producers Organizations building on good practices and lessons learned from CHIRAAG.</p>		
Environment and Climate Context	High	Substantial
<i>Project vulnerability to environmental conditions</i>	<i>Substantial</i>	<i>Moderate</i>
<p>Risk:</p> <p>The risk is substantial. The project area is prone to deforestation as a result of coal mining and illicit felling of trees.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The project will support Households who obtained land under FRA with the productive and sustainable development of the land. The project will not intervene in environmentally sensitive areas and has a negative list of activities that it will not finance as described in the ESMF.</p>		
<i>Project vulnerability to climate change impacts</i>	<i>High</i>	<i>Substantial</i>
<p>Risk:</p> <p>The risk is High. The project area is prone to drought.</p>	High	Substantial
<p>Mitigations:</p> <p>The design of the project emphasizes two key aspects of climate smart agriculture: soil and water conservation, expansion of irrigation potential and integrated farming systems.</p>		
Project Scope	Low	Low
<i>Project Relevance</i>	<i>Low</i>	<i>Low</i>
<p>Risk:</p> <p>The risk is low. The project scope is within the Government policies and the mandate of the Lead Implementing Agency, Department of Agriculture Development and Farmers Welfare and Biotechnology (DoAB).</p>	Low	Low
<p>Mitigations:</p> <p>The project has a robust governance system to ensure the project alignment with state policies and continued relevance.</p>		
Technical Soundness	Low	Low

<p>Risk:</p> <p>The risk is low. All proposed activities are technically sound and already implemented in some form in the State or in similar agro-ecologies.</p>	Low	Low
<p>Mitigations:</p> <p>The project has a well developed Monitoring, Evaluation and Learning (ME&L) which will measure physical and financial progress as well as outcomes and flag implementation issues related to technical soundness, technical capacity or other.</p>		
Institutional Capacity for Implementation and Sustainability	High	Substantial
Implementation Arrangements	High	Substantial
<p>Risk:</p> <p>The risk is high. This is the first externally aided programme in the Department of Agriculture Development and Farmers Welfare and Biotechnology (DoAB), with two financiers</p>	High	Substantial
<p>Mitigations:</p> <p>The project management takes into account additional human resources to manage the WB and IFAD financing. IFAD financing will support additional staff for project management, M&E, knowledge management and for the technical cell on food systems and nutrition.</p> <p>The design team proposes to reduce the burden of adhering to 2 external financiers by aligning the IFAD FM and procurement on WB procedures.</p>		
Monitoring and Evaluation Arrangements	Substantial	Moderate
<p>Risk:</p> <p>The risk is substantial. The DOAB will need to comply with monitoring procedures of WB and IFAD which for output, outcome and impact indicators.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>IFAD financing will align with the Monitoring, Evaluation and Learning System designed by WB. Additional staffing was added to Monitoring, Evaluation and Learning team, as well as addition of annual outcome survey. Additional indicators specific to IFAD were agreed upon with State Govt and WB and will be incorporated in the monitoring plan of the project.</p>		
Project financial Management	Substantial	Moderate
Project Organization and Staffing	Moderate	Low

<p>Risk:</p> <p>Project funds will be managed by the Government of Chhattisgarh FM staff at the Directorate of Agriculture and other district/sub-divisional levels. The following are the proposed CHIRAAG staffing structure for implementation of FM practices: one State Project manager- Program Support (SPMU), one Assistant Project Manager- Finance (SPMU), two Project Executives (SPMU) and one District Coordinator- Finance and Administration at each project district (DPMU). The proposed organizational structure is found suitable for the project but given that this would be the first externally financed project managed by DoAB that is financed by two separate financiers, there may be a need for further training/capacity building activities for project staff members.</p>	Moderate	Low
<p>Mitigations:</p> <p>The project should ensure the recruitment of an adequate number of FM staff with the required qualifications and project finance staff should receive training on IFAD procedures and other relevant FM-related topics. Additional accounting staff will be engaged at District and SPMU level to support existing departmental staff.</p>		
<p>Project Budgeting</p>	Substantial	Moderate
<p>Risk:</p> <p>The Annual Work Plan and Budget (AWPB) will be prepared by the SPMU based on targets outlined in the PDR and subject to approval by the CHIRAAG steering committee and the project will be budgeted as a separate line item in the annual state budget that is presented and approved by the State Legislature.</p> <p>The Director of the Department of Agriculture will be the authorized Drawing and Disbursing officer for withdrawing funds from the project budget. In general, budgeting processes for projects under the India portfolio are deemed to be efficient and well established, it is nevertheless important to ensure sufficient planning in terms of time required for the different stages in the budget approval process to allow for the subsequent timely release of funds and to make sure proper tracking of budgeted versus actual amounts over the project implementation.</p> <p>It is proposed that the PMU will be jointly financed by IFAD, the WB and Government of Chhattisgarh financing. The WB and IFAD financing will cover two different geographic areas with IFAD financing covering six districts and 11 blocks located primarily in the northern part of the state.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The submitted budget needs to incorporate and give a clear overview of all financing contributions, to be submitted for approval by the steering committee and subsequently for IFAD no-objection.</p> <p>In order to keep track of physical and financial progress, the project needs to ensure that adequate structures are put in place for tracking of budgeted versus actual amounts for project expenditures and follow up with relevant actions on any noted significant discrepancies.</p>		
<p>Project Funds Flow/Disbursement Arrangements</p>	High	Substantial

<p>Risk:</p> <p>The project will follow similar funds flow structure as for other project in the portfolio, with the exception that Withdrawal Applications will be submitted to IFAD by the WB, in respect of their role as CI for CHIRAAG. Funds will be transferred from the Designated Account (DA), denominated in USD, into a Project Account at Government level. At both state, district and block level, funds will be transferred based on from e-Kosh and deposited into relevant Project Accounts. Community level institutions will receive direct transfers into separate project bank accounts. All project expenditures will be pre-financed from the state budget.</p>	High	Substantial
<p>Mitigations:</p> <p>To ensure a good level of transparency and proper tracking of account balances, fund transfers and utilization, all accounts for the receipt/transfer of project funds will be registered in the PFMS system (under 5 levels; i) State, ii) District, iii) Sub-Division, iv) Community-large grants, v) Community- small grants).</p>		
<p>Project Internal Controls</p>	<i>Moderate</i>	<i>Low</i>
<p>Risk:</p> <p>A project Financial Management Manual incorporating detailed supplementary financing rules will be developed by the SPM Program Support, as per noted in the PIP. For the internal audit, the project will be subject to quarterly reviews by chartered accountants, which will report on findings to the project management.</p> <p>At community level, a Community Operations Manual will provide guidance on FM process and applicable financial and administrative procedures.</p>	Moderate	Low
<p>Mitigations:</p> <p>The project needs to ensure proper segregation of duties and inventories/fixed assets should be properly reconciled on a regular basis. Given the different levels on which financial transactions will take place (state, district, block), the financial management structures should cover details for all levels to ensure adequate transparency and accountability.</p> <p>Supervision and monitoring should be undertaken during project implementation, led by WB and with IFAD expertise contribution, as per stipulated in the relevant project documentation</p>		
<p>Project Accounting and Financial Reporting</p>	<i>Substantial</i>	<i>Moderate</i>
<p>Risk:</p> <p>CHIRAAG will account for project expenditures using the e-Kosh system and in the current set-up, manual accounting records will be maintained for all funds withdrawn from e-Kosh. It is noted that no system is currently in place, capable of generating the required level of detailed financial reporting as per IFAD requirements.</p> <p>Interim Financial Reports will be submitted by the project within 45 days of the end of each quarter (used as basis for disbursements from the IBRD loan).</p>	Substantial	Moderate

<p>Mitigations:</p> <p>In order to ensure that the project is able to generate financial reports with the required level of detail as per IFAD requirements, an appropriate computerized accounting software needs to be acquired and set-up. This software should optimally also include integrated approval structures, ensuring segregation of duties and a solid system for internal control of project financial reporting.</p> <p>The software should further include recording of counterpart funding (both in-kind materials and labour and cash) contributions.</p>		
<p>Project External Audit</p>	Moderate	Low
<p>Risk:</p> <p>The project will be audited by the India SAI (Comptroller and Auditor General of India, CAG). To align with the WB agreed structure, IFAD will align with the nine months after financial year end timeline for submission of audited financial statements and audit report.</p>	Moderate	Low
<p>Mitigations:</p> <p>Reporting will be aligned with IFAD requirements and any identified audit recommendations should be promptly implemented properly followed up in subsequent audits.</p> <p>There should further be sufficient time allotted to the audit process, in order to ensure time is provided for the receipt of comments from project management on audit observations and recommendations.</p>		
<p>Project Procurement</p>	High	Substantial
<p>Legal and Regulatory Framework</p>	Substantial	Moderate
<p>Risk:</p> <p>The risk is substantial. The Borrower's regulatory and institutional capacity and practices (including compliance with the laws) are inadequate to conduct the procurement in a manner that optimizes value for money with integrity.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The project design suggests the project procurement follows the WB guidelines. As IFAD procurement guidelines are compatible with the WB guidelines, it is suggested to align the project procurement with WB guidelines for the common contracts. For additional scope of services for IFAD financed districts, IFAD approved contracts will be signed on direct contracting basis. Procurement for IFAD financing only will follow IFAD Procurement Guidelines and Handbook and IFAD prior review thresholds. Procurement staff are proposed to be engaged at SPMU and at the District level.. The WB is planning to build the capacity of the SPMU and DPMU on procurement</p>		
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<p>Risk:</p> <p>The risk is substantial. The Borrower’s regulatory and institutional capacity and practices (including compliance with the laws) are inadequate to conduct the procurement in a manner that optimizes value for money with integrity.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The project design suggests the project procurement follows the WB guidelines. As IFAD procurement guidelines are compatible with the WB guidelines, it is suggested to align the project procurement with WB guidelines for the common contracts. For additional scope of services for IFAD financed districts, IFAD approved contracts will be signed on direct contracting basis. Procurement for IFAD financing only will follow IFAD Procurement Guidelines and Handbook and IFAD prior review thresholds. Procurement staff are proposed to be engaged at SPMU and at the District level.. The WB is planning to build the capacity of the SPMU and DPMU on procurement</p>		
<p>Accountability and Transparency</p>	Substantial	Moderate
<p>Risk:</p> <p>The risk is substantial. The project will have highly decentralized implementation and procurement. Noncompliance with agreed procurement arrangements was flagged in the WB procurement assessment as well.</p>	Substantial	Moderate

<p>Mitigations:</p> <p>Mitigation measures designed by the WB and agreed with the State Govt include: 1) a robust complaint redressal mechanism will be put in place. The complaint handling authority, the form of complaint register, response time, decision-making mechanism, and other features will be outlined in detail in the PIM; 2) Procurement prior and post Review: The World Bank will conduct implementation support missions to review the procurement performance of the project. All contracts not covered under prior review by the World Bank will be subject to post review during the implementation support missions and/or special post-review missions, including missions by consultants hired by the World Bank; 3) for activities at community level, annual PPR for an agreed percentage of contracts shall be conducted by an independent consultant as per terms of reference and reporting requirements agreed with the Bank.</p> <p>It is recommended that IFAD adopts the same procedures in addition to social audit and audit of the community organizations starting the second year of the project.</p>		
<p>Risk:</p> <p>The risk is moderate. Noncompliance with agreed procurement arrangements was flagged in the WB procurement assessment.</p>	Moderate	Low
<p>Mitigations:</p> <p>Mitigation measures designed by the WB and agreed with the State Govt include: 1) a robust complaint redressal mechanism will be put in place. The complaint handling authority, the form of complaint register, response time, decision-making mechanism, and other features will be outlined in detail in the PIM; 2) Procurement prior and post Review: The World Bank will conduct implementation support missions to review the procurement performance of the project. All contracts not covered under prior review by the World Bank will be subject to post review during the implementation support missions and/or special post-review missions, including missions by consultants hired by the World Bank; 3) for activities at community level, annual PPR for an agreed percentage of contracts shall be conducted by an independent consultant as per terms of reference and reporting requirements agreed with the Bank.</p> <p>It is recommended that IFAD adopts the same procedures in addition to social audit and audit of the community organizations starting the second year of the project.</p>		
<p>Capability in Public Procurement</p>	High	Substantial
<p>Risk:</p> <p>The risk is high. The WB assessed the DOAB capacity as weak due to non-familiarity with Bank projects and procurement procedures</p>	High	Substantial

<p>Mitigations:</p> <p>Mitigation measures designed by the WB and agreed with the State Govt include: 1) appropriate procurement staffing at SPMU and DPMU level; 2) assignment of an experienced team by Beej Nigam, suitably strengthened, if required, for the project procurement; 3) SPMU to be supported by a full-time procurement consultant; 4) strengthening and capacity building of staff at State level and Beej Nigam thru training at ASCI /NIFM. DPMU to be trained by SPMU/Division staff for support and monitoring of Community level activities.</p> <p>It is suggested that IFAD adopts the same mitigation measures</p>		
<p>Risk:</p> <p>The risk is high. The WB assessed the DOAB capacity as weak due to non-familiarity with Bank projects and procurement procedures</p>	High	Substantial
<p>Mitigations:</p> <p>Mitigation measures designed by the WB and agreed with the State Govt include: 1) appropriate procurement staffing at SPMU and DPMU level; 2) assignment of an experienced team by Beej Nigam, suitably strengthened, if required, for the project procurement; 3) SPMU to be supported by a full-time procurement consultant; 4) strengthening and capacity building of staff at State level and Beej Nigam thru training at ASCI /NIFM. DPMU to be trained by SPMU/Division staff for support and monitoring of Community level activities.</p> <p>It is suggested that IFAD adopts the same mitigation measures</p>		
<p>Risk:</p> <p>The risk is high. The WB assessed the DOAB capacity as weak due to non-familiarity with Bank projects and procurement procedures</p>	High	Substantial
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<p>Risk:</p> <p>The risk is high. The WB assessed the DOAB capacity as weak due to non-familiarity with Bank projects and procurement procedures</p>	High	Substantial

<p>Mitigations:</p> <p>Mitigation measures designed by the WB and agreed with the State Govt include: 1) appropriate procurement staffing at SPMU and DPMU level; 2) assignment of an experienced team by Beej Nigam, suitably strengthened, if required, for the project procurement; 3) SPMU to be supported by a full-time procurement consultant; 4) strengthening and capacity building of staff at State level and Beej Nigam thru training at ASCI /NIFM. DPMU to be trained by SPMU/Division staff for support and monitoring of Community level activities.</p> <p>It is suggested that IFAD adopts the same mitigation measures</p>		
<p>Public Procurement Processes</p>	<p>High</p>	<p>Substantial</p>
<p>Risk:</p> <p>The risk is high. At design, WB assessed that highly decentralized project implementation may result in delays in procurement and contract management processes.</p>	<p>High</p>	<p>Substantial</p>
<p>Mitigations:</p> <p>itigations measure designed by the WB and agreed with the State Govt include: 1) develop Community Procurement Manual for CDD activities to ensure consistency across board; 2) the PIM will specify the delegation and procurement implementation arrangements; 3) all procurement activities at SPMU, Beej Nigam and DPMU level to be included in procurement plan in STEP and prior cleared by Bank and procurement at community level to be collated and monitored by DPMU and shared with SPMU and Bank on biannual basis; 4) use of Standard/ model Bid documents and e-Procurement and contract management tools; 5) develop a procurement information system which will track and provide required information regarding all procurement activities and contracts at the decentralized level; 6) all records from procurement planning to contract completion and procurement complaints shall be retained in a chronological order and made available as and when requested by SPMU or Bank.</p> <p>It is suggested that IFAD adopts the same mitigation measures.</p>		
<p>Risk:</p> <p>The risk is high. At design, WB assessed that highly decentralized project implementation may result in delays in procurement and contract management processes.</p>	<p>High</p>	<p>Substantial</p>

<p>Mitigations:</p> <p>itigations measure designed by the WB and agreed with the State Govt include: 1) develop Community Procurement Manual for CDD activities to ensure consistency across board; 2) the PIM will specify the delegation and procurement implementation arrangements; 3) all procurement activities at SPMU, Beej Nigam and DPMU level to be included in procurement plan in STEP and prior cleared by Bank and procurement at community level to be collated and monitored by DPMU and shared with SPMU and Bank on biannual basis; 4) use of Standard/ model Bid documents and e-Procurement and contract management tools; 5) develop a procurement information system which will track and provide required information regarding all procurement activities and contracts at the decentralized level; 6) all records from procurement planning to contract completion and procurement complaints shall be retained in a chronological order and made available as and when requested by SPMU or Bank.</p> <p>It is suggested that IFAD adopts the same mitigation measures.</p>		
<p>Risk:</p> <p>The risk is high. At design, WB assessed that highly decentralized project implementation may result in delays in procurement and contract management processes.</p>	High	Substantial
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<p>Environment, Social and Climate Impact</p>	Substantial	Moderate
<p>Biodiversity Conservation</p>	Substantial	Moderate
<p>Risk:</p> <p>The risk is substantial. The State is a biodiversity hotspot.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>Mitigation measures listed in the ESMF include: 1) promote community action for biodiversity conservation; 2) investment in community awareness, documentation, conservation and effective utilization through value addition; 3) facilitate planning investments for community infrastructure such as village seed bank through the village development plans.</p>		

<p>Risk:</p> <p>The risk is moderate. The State is a biodiversity hotspot.</p>	Moderate	Low
<p>Mitigations:</p> <p>Mitigation measures listed in the ESMF include: 1) promote community action for biodiversity conservation; 2) investment in community awareness, documentation, conservation and effective utilization through value addition; 3) facilitate planning investments for community infrastructure such as village seed bank through the village development plans.</p>		
<p>Resource Efficiency and Pollution Prevention</p>	Moderate	Low
<p>Risk:</p> <p>Risk is moderate. Run off from construction sites and agricultural activities applying agrochemicals may result in ambient pollution of water bodies.</p>	Moderate	Low
<p>Mitigations:</p> <p>Integrated pest management practices and the use of organic fertilizers will help avoid/minimize pollutions. ESMF has also addressed this risk.</p>		
<p>Cultural Heritage</p>	Moderate	Low
<p>Risk:</p> <p>The risk is moderate. The Project areas are likely to have several pilgrimage sites and places of religious prominence, sacred groves, and sacred water sources.</p>	Moderate	Low
<p>Mitigations:</p> <p>Mitigation measures developed by the WB and State Govt include Chance Find Procedure included in the ESMF</p>		
<p>Indigenous People</p>	Moderate	Low
<p>Risk:</p> <p>The risk is Moderate. Out of 14 districts, 12 are predominantly tribal districts and the project interventions address the range of livelihoods of tribal people which depend on rainfed agriculture, forests and natural resources.</p>	Moderate	Low

<p>Mitigations:</p> <p>The WB and the State Government formulated a Tribal Development Plan. The plan ensures socially- and culturally- compatible project interventions that enjoy broad community support in the tribal villages. These measures include: (i) screening and documentation of, and focused consultations with, tribal households during planning process; (ii) targeting and tracking of tribal households in beneficiary lists for common assets and individual benefits; (iii) use of local tribal language in information dissemination; and (iv) capacity building and convergence with other government schemes targeting tribal areas; (v) the livestock interventions will, in particular, provide project benefits to the transhumant nomadic tribes that are traditionally dependent on grazing and common pastures.</p> <p>It is suggested that IFAD adopts the same measures listed in the Tribal Development Framework which are in line with its strategy for engaging with IPs.</p>		
<p>Labour and Working Conditions</p>	<p>Substantial</p>	<p>Moderate</p>
<p>Risk:</p> <p>The risk is Substantia. Although risk for labour camps, child/ bonded labor, and hazardous work and/ or accidents does not apply to the project, the design document of the WB reports increase in incidence of gender-based violence at state level.</p>	<p>Substantial</p>	<p>Moderate</p>
<p>Mitigations:</p> <p>The WB and State Govt agreed on the following mitigation measures: a Labour Management Framework (LMF) was prepared that includes specific provisions on working terms and conditions, occupational health and safety, child/ forced labor, and gender-based violence, as well as a labor focused grievance redress mechanism. Sub Project Specific Labour Management Plan will be prepared before the commencement of bidding process.</p> <p>It is proposed that IFAD adopts the same procedure.</p>		
<p>Community Health and Safety</p>	<p>Substantial</p>	<p>Moderate</p>
<p>Risk:</p> <p>Risks related to health and safety of communities due to disease transmission such as COVID-19 is substantial. The State of Chhattisgarh was among the more adversely affected states by the Covid pandemic.</p>	<p>Substantial</p>	<p>Moderate</p>
<p>Mitigations:</p> <p>As part of the component on COVID 19 economic recovery response, the project will conduct communication , develop knowledge products and implement campaigns that build awareness and capacity among the project communities on safety and hygiene practices in the context of the ongoing pandemic and proposed project interventions.</p>		
<p>Physical and Economic Resettlement</p>		<p>No risk envisaged</p>
<p>Thw project does not include any activity related to physical or economic resettlement.</p>		

Greenhouse Gas Emissions	Moderate	Low
Risk: The risk is moderate. Livestock activities may lead to increase in GHG.	Moderate	Low
Mitigations: The project activities will lead to GHG mitigation benefits in terms of reductions in GHG emissions and increased carbon sequestration (estimated at 114 thousand tons of CO2 equivalent (tCO2e) over the project life of 20 years). At full development, annual GHG benefits are valued at US\$ 1.6 million and US\$ 3.2 million for the two scenarios respectively of low and high shadow prices for Carbon credit.		
Vulnerability of target populations and ecosystems to climate variability and hazards	High	Substantial
Risk: The risk is High. The population is prone to drought	High	Substantial
Mitigations: The project design adopts climate smart agriculture which includes integrated farming system, soil and water conservation and expansion of irrigation.		
Stakeholders	High	Substantial
Stakeholder Engagement/Coordination	High	Substantial
Risk: The risk is high and this refers to the private sector as a stakeholder. The WB identified that private sector engagement may be low and not immediate, given that the project will be implemented in remote areas, including Left Wing Extremist (LWE-affected areas).	High	Substantial
Mitigations: The project design incorporates several elements that respond to the socioeconomic and political economy context of tribal and LWE areas. Apart from these elements, it will leverage the longstanding presence, outreach and local credibility of NGOs and civil society organizations among communities, and other stakeholders as an important risk mitigation strategy. An LWE sensitization program will be delivered to all staff, partners and communities. Effective project implementation, robust community organizations and increased production volumes and quality would eventually attract private sector tie-ups. A special technical cell is set for value chain development and facilitation of market linkages.		
Stakeholder Grievances	High	Substantial
Risk: The risk is high. Stakeholders are not be aware of the existing channels for reporting grievances, and may require channels for grievance reporting in their own native languages.	High	Substantial

Mitigations:

The mitigation strategy is to use the WB Grievance Redressal Mechanism. For IFAD financing, Govt of Chhattisgarh has a public grievance redressal mechanism and phone number is 0771-2236446 and email is addlceoraipur.cg@nic.in

India

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG) Design Report

Annex 5: CI Environmental safeguards review

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

TEMPLATE

Version 2, July 2019

**Department of Agriculture, Government of
Chhattisgarh**

**Chhattisgarh Inclusive Rural and Accelerated
Agriculture Growth Project
(P170645)**

[Revised Draft]

**ENVIRONMENTAL and SOCIAL
COMMITMENT PLAN (ESCP)**

Revised April 26, 2020

ENVIRONMENTAL AND SOCIAL COMMITMENT PLAN

1. India *will implement* the CHIRAAG Project (the **Project**), with the involvement of the following Ministries/agencies/units: Department of Agriculture (DoA), and the *Department of Rural Development, Social Protection, Health and Family Welfare, Women and Child Development and Forests of the Government of Chhattisgarh*. The *International Bank for Reconstruction and Development (hereinafter the Bank)* has agreed to provide financing for the Project.
2. India will implement material measures and actions so that the Project is implemented in accordance with the Environmental and Social Standards (**ESSs**). This Environmental and Social Commitment Plan (**ESCP**) sets out material measures and actions, any specific documents or plans, as well as the timing for each of these.
3. India will also comply with the provisions of any other E&S documents required under the ESF and referred to in this ESCP, such as the Environment and Social Management Framework (ESMF), Gender Action Plan framework (GAP), Stakeholder Engagement Plan (SEP), Pest Management Plan (PMP), Nutrient Management Plan (NMP), Tribal Development Plan (TDP), Biodiversity Management Plan (BMP) and Labor Management Procedures (LMP), and the timelines specified in those E&S documents.
4. India is responsible for compliance with all requirements of the ESCP even when implementation of specific measures and actions is conducted by the Ministry, agency or unit referenced in 1 above.
5. Implementation of the material measures and actions set out in this ESCP will be monitored and reported to the *Bank* by DoA, GoC as required by the ESCP and the conditions of the legal agreement, and the *Bank* will monitor and assess progress and completion of the material measures and actions throughout implementation of the Project
6. As agreed by the *Bank* and DoA, GoC, this ESCP may be revised from time to time during Project implementation, to reflect adaptive management of Project changes and unforeseen circumstances or in response to assessment of Project performance conducted under the ESCP itself. In such circumstances, DoA, GoC will agree to the changes with the *Bank* and will update the ESCP to reflect such changes. Agreement on changes to the ESCP will be documented through the exchange of letters signed between the *Bank* and the DoA, GoC. The DoA, GoC will promptly disclose the updated ESCP.
7. Where Project changes, unforeseen circumstances, or Project performance result in changes to the risks and impacts during Project implementation, India shall provide additional funds, if needed, to implement actions and measures to address such risks and impacts, which may include: moderate environmental risks associated with small to medium scale, community based civil works, environmental, health, and safety impacts; and social risks that include (i) geographical, (ii) economic, (iii) social exclusion, (iv) labor influx, (v) gender-based violence, and (vi) institutional.

MATERIAL MEASURES AND ACTIONS		TIMEFRAME	RESPONSIBLE ENTITY/AUTHORITY
MONITORING AND REPORTING			
A	<p>REGULAR REPORTING:</p> <p>Prepare and submit regular monitoring reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to the implementation of the ESCP, status of preparation and implementation of E&S documents required under the ESCP, stakeholder engagement activities, and functioning of the grievance mechanisms.</p>	<p><i>Quarterly not later than 15 days from end of a calendar quarter</i></p>	<p>PMU, CHIRAAG Funding from the project budget</p>
B	<p>An independent Environmental and Social Audit at mid-term and End term</p>	<p>At the end of third year for mid-term audit and end of fifth year for end term audit (depending on project implementation timeline)</p>	<p>PMU, CHIRAAG</p>
C	<p>INCIDENTS AND ACCIDENTS</p> <p>Promptly notify the Bank any incident or accident related or having an impact on the Project which has, or is likely to have, a significant adverse effect on the environment, tangible cultural heritage, the affected communities, the public or workers. Provide sufficient detail regarding the incident or accident, indicating immediate measures taken to address it, and include information provided by any contractor and supervising entity. Subsequently, as per the Bank’s request, prepare a report on the incident or accident and propose any measures to prevent its recurrence</p>	<p><i>Promptly and no later than twenty-four hours after taking notice of the Project-related incident or accident.</i></p>	<p>PMU, CHIRAAG</p>
C	<p>CONTRACTORS MONTHLY REPORTS</p>		
ESS 1: ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS			

MATERIAL MEASURES AND ACTIONS		TIMEFRAME	RESPONSIBLE ENTITY/AUTHORITY
1.1	<p>ORGANIZATIONAL STRUCTURE</p> <p>Establish an organizational structure with qualified staff and resources to support management of E&S risks including agreed environmental specialist, social specialist, Tribal Development focal point as well as short term consultants (whenever required) within the PMU at state level, who will support, monitor and report on the implementation/compliance of the ESMF and other relevant environmental and social documents. Maintain the organizational structure as necessary throughout Project implementation. Training and capacity building of local staff shall be undertaken as per the ESMF.</p>	<p><i>Mobilized no later than 90 days after project effectiveness; thereafter maintained throughout implementation</i></p>	DoA, GoC
1.2	<p>ENVIRONMENTAL AND SOCIAL ASSESSMENT</p> <p>Implement the provisions included in the specific environmental and social documents, as required from time to time and report on their implementation progress.</p>	<p><i>ESMF has been prepared. Pest Management Plan, Nutrient Management Plan and Biodiversity Management Plans, and a generic construction Management Plan need to be prepared within 120 days from project effectiveness.</i></p>	DoA, GoC
1.3	<p>MANAGEMENT TOOLS AND INSTRUMENTS</p> <p>Preparation of sub-project specific ESIA/ESMPs</p>	<p><i>Prior to commencement of bidding process</i></p>	DoA, GoC
1.4	<p>MANAGEMENT OF CONTRACTORS</p> <p>Incorporate the relevant aspects of this ESCP, and the E&S documents required under this ESCP including, inter alia, any environmental and social management plans or other instruments, ESS2 requirements, and any other required ESHS measures, the procurement documents and contracts with contractors and supervising firms. Thereafter, ensure that contractors and supervising firms comply with the ESHS specifications of their respective contracts.</p>	<p><i>Before launching of the bidding process</i></p>	DoA, GoC
ESS 2: LABOR AND WORKING CONDITIONS			
2.1	<p>Labour Management Procedure is prepared in accordance with the ESS2.</p>	<p><i>Before the commencement of the bidding process</i></p>	DoA, GoC
2.2	<p>Ensure that Contractor prepares a Labour Management Plan (LMP) consistent with ESS2 including GRM for project workers is prepared.</p>	<p><i>Within 30 days of Contractor's mobilization</i></p>	DoA, GoC
2.2 a	<p>Workers' camp management plan prepared by contractor in accordance with LMP</p>	<p><i>Within 30 days of Contractor's mobilization</i></p>	DoA, GoC

MATERIAL MEASURES AND ACTIONS		TIMEFRAME	RESPONSIBLE ENTITY/AUTHORITY
2.2 b	Ensure that sub-projects includes an occupational, health and safety (OHS) measures specified in the ESMP	<i>Within 60 days of Contractor's mobilization</i>	DoA, GoC
2.2 c	Code of conduct prepared by the contractor as part of LMP and signed by all laborers and staff	<i>Within 60 days of Contractor's mobilization</i>	DoA, GoC
2.3	Sub project specific ESIA includes an occupational, health and safety (OHS) measures as part of Contractor's ESMP.	<i>Before the commencement of the bidding process</i>	DoA, GoC
ESS 3: RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT			
3.1	Finalize (i) Pest Management Plan (PMP) and (ii) Nutrient Management Plan (NMP) and packages for commodities selected under the project in a manner acceptable to the Bank. The PMP shall cover capacity building measures and training (on safe pesticide use and integrated pest management), storage and disposal of pesticides and other agrochemicals, PPEs required, clear implementation arrangement and timeline, monitoring, supervision and reporting provision,	<i>PMP and NMP templates included in ESMF Finalize within 120 days from project effectiveness</i>	DoA, GoC
3.2	Prepare 'Good Aquaculture Practice' guidelines in a manner acceptable to the Bank covering training, monitoring, supervision and reporting provision, disease and waste management measures, among others	<i>Within 120 days from project effectiveness</i>	
3.3	Contractor to prepare a sub-project specific ESMP for specific construction sites, where required, as per ESMF in a manner acceptable to the Bank.	<i>Before start of the construction work</i>	Contractor DoA, GoC
ESS 4: COMMUNITY HEALTH AND SAFETY			
4.1	TRAFFIC AND ROAD SAFETY: Prepare a generic 'construction management plan' or specific ESMPs , which shall be adapted for specific construction sites in a manner acceptable to the bank to address small scale construction works involved in value chain and watershed management to address any Environment, Social, Health and Safety issues, including traffic and road safety, and waste management issues arising from it.	<i>Within 120 days from project effectiveness</i>	DoA, GoC
4.2	COMMUNITY HEALTH AND SAFETY: PMP and NMP under ESS3 will address the potential community health risks arising from usage of agrochemicals.	<i>Finalize within 120 days from project effectiveness</i>	DoA, GoC
4.3	GBV AND SEA RISKS: The sub project specific ESIA will include a stand-alone Gender-Based Violence Action Plan (GBV Action Plan), to assess and manage the risks of gender-based violence (GBV) and sexual exploitation and abuse (SEA).	<i>Before the commencement of bidding process</i>	DoA, GoC

4.4	A Gender Action Plan specific to sub project is prepared	<i>Before the commencement of bidding process.</i>	DoA, GoC
ESS 5: LAND ACQUISITION, RESTRICTIONS ON LAND USE AND INVOLUNTARY RESETTLEMENT			
5.1	No land is envisaged to be acquired. The government or public land used will be free of encroachment and other encumbrances.		
5.2	Screening exercise and physical verification of each sub project carried out to ensure land identified is not private land and is free of encroachment and other encumbrances; and community mobilization to ensure participation of marginalized community in decision making.	<i>During the process of finalization of site for intervention and before the commencement of bidding process</i>	DoA, GoC (block level PIU); and Community Coordinator
ESS 6: BIODIVERSITY CONSERVATION AND SUSTAINABLE MANAGEMENT OF LIVING NATURAL RESOURCES			
6.1	BIODIVERSITY RISKS AND IMPACTS: Prepare a Biodiversity Management Plan (BMP) in a manner acceptable to the Bank that will include, monitoring indicators to track extraction of NTFPs as well as other living resources and appropriate mitigation measures to address unsustainable extraction practices.	<i>Within 120 days from project effectiveness</i>	DoA, GoC Budget from project funding
ESS 7: INDIGENOUS PEOPLES/SUB-SAHARAN AFRICAN HISTORICALLY UNDERSERVED TRADITIONAL LOCAL COMMUNITIES			
7.1	GoC shall ensure that sub project specific ESIA includes Tribal Development Plan (TDP) consistent with the requirements of the Tribal Development Framework (TDF) that has been prepared for the Project and ESS7, in a manner acceptable to the Bank.	<i>An overall Framework is prepared but once the area and actual investments are identified in the tribal areas detailed plan for each will be prepared in tune with the sub project. Will be part of ESIA to be prepared before the bidding process is initiated.</i>	DoA, GoC
ESS 8: CULTURAL HERITAGE .			
8.1	CHANCE FINDS: Chance Find Procedure has been included in the ESMF. A Cultural Heritage Management Plan will be developed as part of site-specific ESIA/ESMP to address any risks or impacts on tangible and intangible cultural heritage or encounter with previously unknown cultural heritage during the project activity.	<i>Chance Find Procedure has been included in the ESMF</i> <i>CHMP as part of site specific ESMPs</i>	DoA, GoC
ESS 9: FINANCIAL INTERMEDIARIES [This standard is only relevant for Projects involving Financial Intermediaries (FIs). See below a couple of examples of actions that should be considered when FIs are involved.]			
9.1	No FIs expected to participate in the project		
ESS 10: STAKEHOLDER ENGAGEMENT AND INFORMATION DISCLOSURE			

10.1	Ensures that a STAKEHOLDER ENGAGEMENT PLAN is finalized and disclosed	<i>Prior to the project effectiveness.</i>	DoA, GoC
10.2	Project level grievance redress mechanism including Mechanism for constitution and notification of GRMs established	<i>Within 90 days of project effectiveness</i>	DoA, GoC
10.3	Prepare annual SEP report and dissemination mechanism for disclosure of report among the stakeholders	<i>Within 30 days of end of GOI's financial year</i>	DoA, GoC
CAPACITY SUPPORT (TRAINING)			
CS1	Appraisal has identified the needs for specific Training to be provided through the inclusion of a Training Needs Assessment for all relevant stakeholders, as appropriate.	<i>The draft sub project specific ESIA covers training needs of all stakeholders.</i>	DoA, GoC
CS2	All training and capacity building measures for relevant stakeholders under the stand alone plans of PMP, NMP, Good Aquaculture Management Guidelines, and Biodiversity Management Plan with follow-up monitoring and refresher trainings shall be conducted at identified timeline and provided with appropriate budget.	<i>As per ESIA and stand-alone plans</i>	DoA, GoC

India

**Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)
Design Report**

Annex 6: CI Project Implementation Manual (PIM)

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project (CHIRAAG)

Project Implementation Plan

(DRAFT Dt: 30 October 2020)

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ABBREVIATIONS

1. AAP: Annual Action Plan
2. ADF: Assistant Director of Fisheries
3. ADH: Assistant Director Horticulture
4. ADO: Agriculture Development Officer
5. AI: Artificial Insemination
6. AMIS: Agricultural Marketing Information System
7. APC: Agriculture Production Commissioner
8. APEDA: Agricultural and Processed Food Products Export Development Authority
9. APM: Assistant Project Management
10. APMLC: Agriculture Produce and Livestock Market Committee
11. ARP: Agriculture Resource Person / Krishi Mitra
12. ASCO: Assistant Soil Conservation Officer
13. ATMA: Agricultural Technology Management Agency
14. AWW: Anganwadi Workers
15. SBCC: Social and Behaviour Change Communication
16. BCI: Behaviour Change Intervention
17. BGREI: Bringing Green Revolution to Eastern India
18. BLF: Block Level Federation
19. BMP: Biodiversity Management Plan
20. BP: Bastar Plateau
21. BPIU: Block Program Implementation Unit
22. BPL: Below Poverty Line
23. BPM: Block Project Manager
24. BRS: Blue Revolution Scheme
25. BYP: Backyard Poultry
26. CAAA: Controller General of Aid, Accounts and Audit
27. CAG: Comptroller and Auditor General of India
28. CAGR: Compound Annual Growth Rate
29. CAPF: Central Armed Police Forces
30. CAPI: Computer-Assisted Personal Interviewing
31. CBMS: Community Based Monitoring System
32. CBNRM: Community-Based Natural Resource Management
33. CBO: Community Based Organization
34. CC: Community Coordinator
35. CERC: Contingent Economic Recovery Response (CERC)
36. CERR: COVID-19 Economic Recovery Response
37. CG Plains: Chhattisgarh Plains
38. CGFR: Chhattisgarh General Financial Rules
39. CGMFP: Chhattisgarh State Minor Forest Produce
40. CGWB: Central Ground Water Board
41. CHC: Custom Hiring Center
42. CHiPS: Chhattisgarh Infotech Promotion Society
43. CHIRAAG: Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project
44. CIP: International Potato Center
45. CLF: Community Level Federation
46. CQS: Consultants Qualifications Selection
47. CRC: CHIRAAG Resource Committee
48. CREDA: Chhattisgarh State Renewable Energy Development
49. CRI: Commitment to Reducing Inequality
50. CRP: Community Resource Persons
51. CRRI: Central Rice Research Institute
52. CSA: Climate Smart Agriculture
53. CSA: Community Supported Agriculture
54. CSC: Common Service Centers
55. CSIDC: Chhattisgarh State Industrial Development Corporation

56. CSIR: Council of Scientific and Industrial research
57. CSR: Corporate Social Responsibility
58. CVDP: CHIRAAG Village Development Plan
59. DA: Disbursement Advice
60. DAG: Directorate of Agriculture
61. DBT: Direct Benefit Transfer
62. DCP: Dicalcium Phosphate
63. DDA: Deputy Director Agriculture
64. DDF: Deputy Director of Fisheries
65. DDH: Deputy Director of Horticulture
66. DDO: Drawing and Disbursing Officer
67. DDVS: Deputy Director of Veterinary Services
68. DEO: Data Entry Operator
69. DM Act: Disaster Management Act
70. DM: District Magistrate
71. DMF: District Mineral Foundation
72. DoAB: Departments of Agriculture, Farmer Welfare and Biotechnology
73. DPMU: District Project Management Unit
74. DPIU: District Project Implementation Unit
75. DPM: District Project Manager
76. DS: Direct Selection
77. DST: Department of Science and Technology
78. SWCE: Soil and Water Conservation unit of Directorate of Agriculture
79. EA: Environmental Assessment (EA)
80. EC: Environmental Clearance
81. EEI: Extension Education Institute
82. EMF: Environmental Management Framework
83. EMP: Environmental Management Plan
84. EMU: Environmental Management Unit
85. EoI: Expression of Interest
86. ESCP: Environment and Social Commitment Plan
87. ESG: Environmental: and: Social: Guidelines
88. ESIA: Environmental and Social Impact Assessment
89. ESMF: Environment and Social Management Framework
90. ETA: End-Term Assessment
91. FBBS: Fixed Budget Based Selection
92. FDA: Funds Demand Application
93. FDI: Foreign Direct Investment
94. FGD: Focus Group Discussion
95. FIG: Farmers Interest Group
96. FLW: Food loss and waste
97. FMF: Financial Management Framework
98. FPO: Farmer Producer Organization
99. FRA: Forest Rights Act
100. FSI: Forest Survey of India
101. FSSAI: Food Safety and Standards Authority of India
102. FY: Financial Year
103. GB: General Body
104. GC: Gauthan Committee
105. GDI: Gender-related Development Index
106. GDP: Gross Domestic Product
107. GeM: Government e-Marketplace
108. GER: Gross Enrolment Ratio
109. GHG: Green House Gas
110. GIS: Geographic Information System
111. GNY: Godhan Nyay Yojana
112. GoCG: Government of Chhattisgarh
113. GoI: Government of India
114. GP: Gram Panchayat
115. GPDP: Gram Panchayat Development Plan

116. GSDP: Gross State Domestic Product
117. HDI: Human Development Index
118. HHs: Households
119. HYV: High Yielding Variety
120. IB&CB: Institution Building & Capacity Building
121. IBRD: International Bank for Reconstruction and Development
122. ICAR: Indian Council of Agricultural Research
123. ICB: International Competitive Bidding
124. ICDS: Integrated Child Development Services
125. ICFRE: Indian Council of Forestry Research and Education
126. ICT: Information and Communications Technology
127. IEC: Information Education and Communication
128. IFNSA: Integrated Food and Nutrition Supportive Agriculture
129. IFS: Integrated Farming System
130. IFSM: Integrated Farming System Model
131. IFSS: Integrated Farming System School
132. IGKV: Indira Gandhi Krishi Vishwa Vidyalaya
133. IMC: Indian Major Carps
134. IMR: Infant Mortality Rate
135. INRM: Integrated Natural Resource Management
136. IPM: Integrated Pest Management
137. IT/ITeS: Information Technology/ Information Technology Enable Services
138. IUFR: Interim Unaudited Financial Reports
139. IVCDSS: Inclusive Value Chain Development and Strengthening Strategy
140. IWMP: Integrated Watershed Management Programme
141. JDVS: Joint Director Veterinary Services
142. JFMC: Joint Forest Management Committees
143. KCC: Kisan Credit Card
144. KPI: Key Project Indicators
145. KVK: Krishi Vigyan Kendra
146. LCBS: Least Cost Based Selection
147. LG: Livelihood Groups
148. LRP: Local Resource Persons
149. LWE: Left-Wing Extremism
150. M&E: Monitoring and Evaluation
151. MANAGE: National Center for Management of Agricultural Extension
152. MDB: Multilateral Development Bank
153. MDG: Millennium Development Goals
154. MFI: Micro Finance Institutions
155. MFP: Minor Forest Produce
156. MGNREGA: Mahatma Gandhi National Rural Employment Guarantee Act
157. MIDH: Mission for Integrated Development of Horticulture
158. MIS: Management Information System
159. MIYCF: Maternal, Infant and Young Child Feeding
160. MoPR: Ministry of Panchayati Raj
161. MoRD: Ministry of Rural Development
162. MOTA: Ministry of Tribal Affairs
163. MoU: Memorandum of Understanding
164. MSP: Minimum Support Price
165. NABARD: National Bank for Agriculture and Rural Development
166. NADEP: National Agribusiness Development Programme
167. NARS: National Agriculture Research System
168. NCB: National Competitive Bidding
169. NCP: National Competitive Procurement
170. NFHS: National Family Health Survey
171. NFSM: National Food Security Mission
172. NFTP: Non-Wood Forest Produce
173. NGGB: Narwa Garuwa Ghurwa and Baadi
174. NGO: Non-Governmental Organization
175. NH: Northern Hills

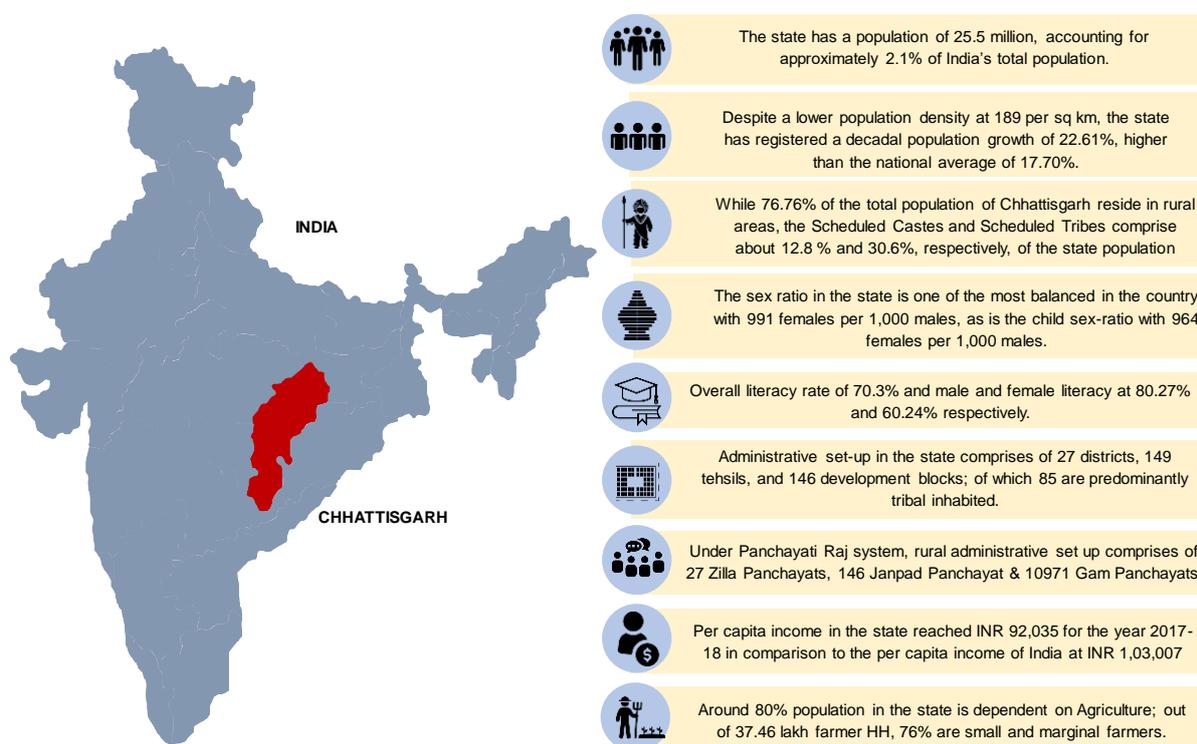
176. NHM: National Horticulture Mission
177. NIC: National Informatics Center
178. NMOOP: National Mission on Oilseeds and Oil Palm
179. NMP: Nutrient Management Plan
180. NPK: Nitrogen, Phosphorous, Potassium
181. NPP: National Procurement Procedures
182. NRC: Nutrition Rehabilitation Centres
183. NRLM: National Rural Livelihoods Mission
184. NRM: Natural Resource Management
185. NSA: Nutrition Supportive Agriculture
186. NSRA: Nutrition Supportive Resilient Agriculture
187. NSRL: Nutrition Supportive Climate Resilient Livestock
188. NTFPs: Non-Timber Forest Produces
189. OEM: Original Equipment Manufacturer
190. PACS: Primary Agricultural Credit Society
191. PC: Producer Companies
192. PD: Project Director
193. PDO: Project Development Objective
194. PDS: Public Distribution System
195. PESA: Panchayat Extension to the Scheduled Areas Act
196. PFA: Power for All
197. PFMS: Public Financial Management System
198. PGs: Producer Groups
199. PIP: Project Implementation Plan
200. PIU: Project Implementation Unit
201. PMFBY: Pradhan Mantri Fasal Bima Yojana
202. PMKSY: Pradhan Mantri Krishi Sinchayee Yojana
203. PMP: Pest Management Plan
204. PMU: Project Management Unit
205. PoP: Package of Practices
206. PPCP: Public Private Community Partnership
207. PPG: Poultry Producer Groups
208. PPP: Public Private Partnership
209. PPR: Procurement Post Review
210. PRA: Participatory Rural Appraisal
211. PRI: Panchayati Raj Institutions
212. PS: Pashudhan Sakhi
213. PVA: Participatory Vulnerability Assessment
214. PVTGS: Primitive Vulnerable Tribal Groups
215. QBS: Quality Based Selection
216. QCBS: Quality and Cost Based Selection
217. RAEO: Rural Agricultural Extension Officer
218. RBI: Reserve Bank of India
219. RC: Rate Contracts
220. RD: Regional Diagnostic
221. RDA: Recommended Dietary Allowance
222. RES: Rural Engineering Services
223. RF: Results Framework
224. RFB: Request for Bids
225. RFP: Request for proposal
226. RFQ: Request for Quotations
227. RGNV: Rajiv Gandhi Nyay Yojana
228. RHEO: Rural Horticulture Extension Officer
229. RKVY: Rashtriya Krishi Vikas Yojana
230. RRA: Rapid Rural Assessment
231. S&WC Structures: Soil and Water Conservation Structures
232. SAMETI: State Agriculture Management and Extension Training Institute
233. SAU: State Agricultural University
234. SBCC: Social and Behaviour Change Communication
235. SC/ST: Scheduled Caste / Schedule Tribe

- 236. SDAO: Sub-Division Agriculture Officer
- 237. SDG: Sustainable Development Goals
- 238. SECC: Social and Economic Caste Census
- 239. SFAC: Small Farmers' Agribusiness Consortium
- 240. SHC: Soil Health Card
- 241. SHGs: Self-Help Groups
- 242. SoE: Statements of Expenditure
- 243. SOP: Standard Operating Procedures
- 244. SoR: Schedule of Rates
- 245. SPD: Standard Procurement Documents
- 246. SPM IFS: State Project Managers Integrated Farming System
- 247. SPM: State Project Manager
- 248. SPMU: State Project Management Unit
- 249. SRLM: State Rural Livelihood Mission
- 250. SRS: Software Requirement Specifications
- 251. SSM: State Scheme Manager
- 252. ST: Schedule Tribes
- 253. STEP: Systematic Tracking of Exchanges in Procurement
- 254. SVEP: Start-up Village Entrepreneurship Program
- 255. SWCE: Soil and Water Conservation Unit
- 256. TNA: Training Need Assessment
- 257. ToC: Theory of Change
- 258. ToR: Terms of Reference
- 259. ToT: Training of Trainers
- 260. TPPF: Tribal People Planning Framework
- 261. TRIFED: Tribal Cooperative Marketing Development Federation
- 262. TSA: Technical Support Agency
- 263. TTK: Tribal Traditional Knowledge
- 264. U5MR: Under-five mortality rate
- 265. UAV: Unmanned Aerial Vehicle
- 266. UC: Utilization Certificates
- 267. UNDP: United Nation Development Programme
- 268. URS: User Requirements Specification
- 269. USAID: United States Agency for International Development
- 270. VCA: Value Chain Analysis
- 271. VCDC: Value Chain Development Cell
- 272. VDP: Village Development Plan
- 273. VHND: Village Health, and Nutrition Days
- 274. VO: Village Organisations
- 275. VT: Vazan Tyohar (Weight Festival)
- 276. VTDP: Village Tribal Development Plan
- 277. WASH: Water, Sanitation and Hygiene
- 278. WB: World Bank
- 279. WCD: Women and Child Development
- 280. WHO: World Health Organization
- 281. WRD: Water Resource Department
- 282. WRMC: Water Resource Management Committee

1. Introduction

1.1. Chhattisgarh- A Brief Profile

Chhattisgarh came into being as the 26th state of the Indian Union on 1st November 2000 with the enactment of the Madhya Pradesh Reorganization Act 2000 which brought together 16 Chhattisgarhi speaking districts of Madhya Pradesh as a separate a state in Central India. With a geographical area of 135,195 sq km., the state accounts for 4.1% of the total land area of India.¹ Chhattisgarh's topography broadly comprises of Bastar plateau in the south, central plains along the Mahanadi basin & its tributaries and Northern Hills region. The southern & northern regions of the state are home to rich and diverse forests which cover about 44% of the geographical area of Chhattisgarh and play a central role in the livelihood of forest-dependent communities along with these belts.² The following figure represents some of the key highlights of the state.³⁴



Chhattisgarh has emerged as one of the most preferred investment destinations in India. The state has been acclaimed as "one of the best fiscally managed states" by the Reserve Bank of India (RBI). The state (including Madhya Pradesh) attracted cumulative FDI worth US\$ 1.43 billion from April 2000 - March 2018. A wide range of fiscal and policy incentives for businesses have been announced under its Industrial Policy, 2014-19. Additionally, the state has well-drafted policies for the IT/ITeS, solar energy, agro and food processing, minerals and biotechnology sectors. Chhattisgarh stands fourth among Indian states in rankings based on ease of doing business and reform implementation, according to a study by the World Bank.⁵ Further, the state has conducted the largest skill development effort in India – over 280 thousand youth were trained in the last three years.

To effectively leverage all these advantages and strengths it is crucial to address the fundamental issues related to income enhancement and nutrition improvement among the people mostly concentrated in the rural areas, which comprises over 70% of the total state population. The vicious cycle of poverty and malnutrition needs to be broken to bring about sustainable livelihoods and good

¹State Focus Paper2019-20" NABARD

²State Focus Paper2019-20" NABARD

³Chhattisgarh Profile" Census Info India 2011

⁴State Focus Paper2019-20" NABARD

⁵ "Chhattisgarh State Report", June 2019, IBEF

health that would form the basis of developing the human capital, which would further provide an impetus to the economic growth of the state of Chhattisgarh.

With the spread of Covid-19 pandemic, the state is beholding a considerable impact on the nutrition and income of small and marginal farmers. The imposed lockdown has restricted access to organized aggregation, post-harvest storage and transport support for the farmers. Besides, there has been a significant increase in the post-harvest losses owing to limited utilization in fear of Covid-19 contamination. The risk of spread of Covid-19 due to gatherings at Mandi has limited the connection with farmers, resulting in the sharing of limited market information. Other than the income loss, the food disruption system has severely impacted the vulnerable communities, especially women, children and remote tribes. The disruption in nutrition and healthcare services has posed significant challenges to the caregiving responsibility of women which has resultantly affected children's physical, emotional and psychological well-being. Though infant mortality rate has been decreasing continuously in Chhattisgarh from 79 IMR per 1000 live births in the year 2000 to 39 IMR in 2016⁶, there is a significant danger of losing these gains due to Covid-19 and its impact on health and food nutrition system. Also, of the total population in the state, 30.6%⁷ is the tribal population, which relies heavily on the minor forest produce. The temporary slowdown of agriculture and allied sector has impacted the daily wages of the tribal community due to the disruption in the supply chain.

While the state is experiencing a disruption in food system during these emergency times, it is essential to ensure careful functioning of food markets and value chains, the purchasing power of the rural and urban poor and also to safeguard the production of the next agricultural season. The agriculture sector is experiencing demand and supply-side shocks. With the closure of hotels, restaurants, canteens and informal service providers, this is likely to include a drop in demand for horticulture, livestock and poultry products, given the income effects of economic contraction. A reduced requirement of food has led to a decline in farm-gate prices for agricultural commodities. On the supply side, the buying behaviour of consumer has shifted from in-person purchases to online transactions and home-delivery services. The logistical and labour constraints have compelled the produce growers to move to wholesale and retail channels from the foodservice outlets. These constraints are also hugely influencing trade prices of agricultural commodities.

CHIRAAG holistically addresses the impact of Covid-19 in the state by various measures. It envisions to support the farming community of the state by continuous monitoring of commodity prices to safeguard small and marginal farmers from income shocks and food insecurity. High-value agricultural commodities such as vegetables, poultry and livestock are particularly susceptible to a contraction in consumption expenditure. The project supports the farming community by improving the food safety along with livestock commodity value chain, which is essential to minimize the risk of the zoonotic disease outbreak. Restricted mobility and manufacturing disruptions have endangered timely availability of agricultural inputs: seeds, fertilizers, pesticides, access to credit and labour for harvesting. Hence, it is also essential to monitor the availability of inputs and strengthen the resilience of food systems. The project also envisages strengthening of institutional capacity for the provision of needed public goods, including research and development, extension services and incentivizing desired nutritional outcomes. Strengthening supply chain management and agro-logistics will also be a crucial part of increased resilience of food systems.

1.1.1. Demographics

The total population of the state is 25.5 million with 12.83 million males and 12.71 million females, representing a balanced gender distribution in the population. Out of the total population, about 23% reside in the urban areas, while the remaining 77% resides in rural areas. The Scheduled Tribes (STs) constitute 31% i.e. 7.91 million of the total population.⁸ The sex ratio in the state is one of the most balanced in the country with 991 females per 1,000 males, as is the child sex-ratio with 964 females per 1,000 males. Chhattisgarh has a literacy rate of 70.3%, with male and female literacy at 80.27% and 60.24% respectively.⁹

Though Chhattisgarh constitutes a small proportion of India's total population, the decadal growth rate in population has been impressive for the state, compared with the national growth rate in the

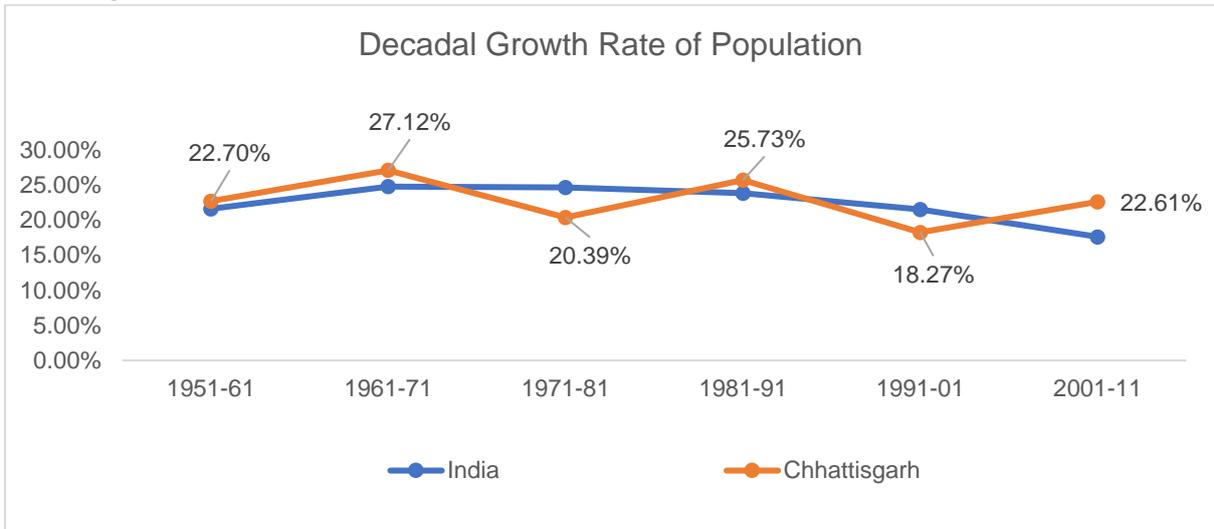
⁶<https://niti.gov.in/content/infant-mortality-rate-imr-1000-live-births>

⁷ Census 2011, Data tables

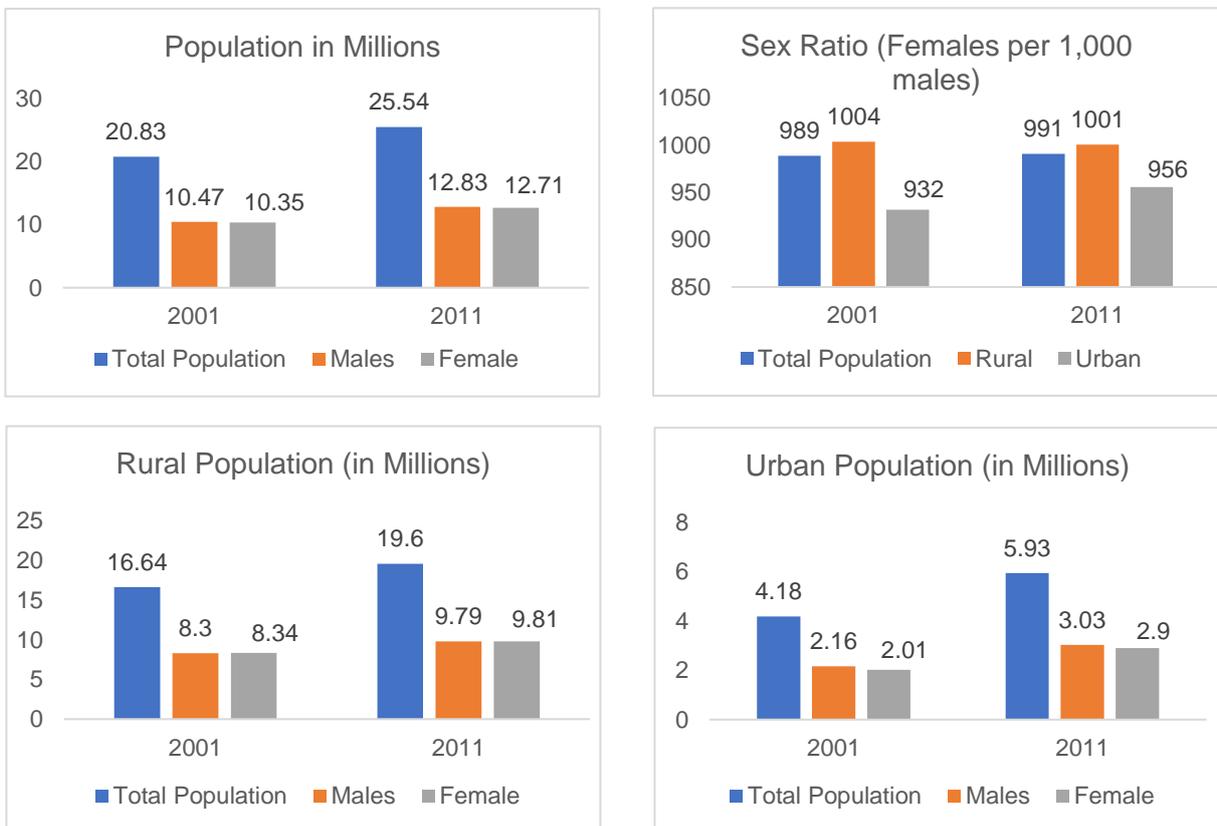
⁸ "Chhattisgarh Profile" Census Info India 2011

⁹ "State Focus Paper 2019-20" NABARD

population. The following graph depicts the decadal population growth rate of India vis-à-vis Chhattisgarh.¹⁰



Source: "Size, Growth Rate and Distribution of Population" Census India, Government of India, 2011



Source: "Size, Growth Rate and Distribution of Population" Census India, Government of India, 2011

Demographics of Chhattisgarh has rapidly evolved during the last one and a half-decade. In many instances, Chhattisgarh has fared well compared to the national average. One of the changes was observed in the ratio of working and non-working population i.e. the dependency ratio that declined to signify that the population in the state has an opportunity to accumulate wealth in the process of more production and less consumption. The fall in the age dependency ration in Chhattisgarh declined at a faster rate as compared to India's overall dependency ratio.

¹⁰ "Size, Growth Rate and Distribution of Population" Census India, Government of India, 2011

Some of the other key facts of Chhattisgarh compared with India are mentioned in the table below.¹¹

State/Districts – Census 2011		2011 (million)	
Total Population		Male	Female
India		623 (51.5%)	587 (48.5%)
Chhattisgarh		12.8 (50.2%)	12.7 (49.8%)
Total Literates		Male	Female
India		434 (80.9%)	328 (64.6%)
Chhattisgarh		8.9 (81.4%)	6.6 (60.5%)
Decadal Population Growth		Male	Female
India		90.9 (17.1%)	90.9 (18.3%)
Chhattisgarh		2.3 (22.4%)	2.3 (22.7%)
Dependency Ratio			
		2001	2011
India all age dependency		67.3%	57.1%
Chhattisgarh all age dependency		70.7%	58.7%
India child age dependency		59.3%	48.5%
Chhattisgarh child age dependency		63.7%	50.9%

Source: State Economic Survey 2017-18, Directorate of Economics and Statistics, Chhattisgarh

Chhattisgarh has the seventh-largest tribal population in India accounting for a share of 7.5% of the total tribal population in the country as per the 2011 Census.¹² Some of the top tribal-dominated districts in Chhattisgarh include Bijapur (80% of the population as ST), Dakshin Bastar Dantewada (77%), Narayanpur (77%), Bastar (66%), Jashpur (62%), among other districts. The following table below gives a brief demographics about the ST population across districts in Chhattisgarh.¹³

State/Districts – Census 2011	% of ST Population	Child Sex Ratio - ST	Literacy Rate - ST	Overall Literacy Rate
Bijapur	80%	976	28%	35%
Dakshin Bastar Dantewada	77%	1014	28%	37%
Narayanpur	77%	992	35%	42%
Bastar	66%	1009	39%	47%
Jashpur	62%	990	57%	59%
Surguja	55%	979	45%	52%
Uttar Bastar Kanker	55%	993	55%	62%
Koriya	46%	995	52%	61%
Korba	41%	994	54%	63%
Raigarh	34%	978	55%	64%
Mahasamund	27%	1003	56%	62%
Rajnandgaon	26%	1000	62%	67%
Dhamtari	26%	990	64%	69%
Kabeergham	20%	1017	43%	51%
Bilaspur	19%	994	52%	61%
Durg	12%	994	67%	70%
Janjgir - Champa	12%	952	57%	64%
Raipur	12%	995	57%	66%

Source: Statistical Profile of Scheduled Tribes in India 2013" Ministry of Tribal Affairs, Statistics Division, Government of India

¹¹ State Economic Survey 2017-18, Directorate of Economics and Statistics, Chhattisgarh

¹² "Statistical Profile of Scheduled Tribes in India 2013" Ministry of Tribal Affairs, Statistics Division, Government of India

¹³ "Demographic Status of Scheduled Tribe Population", NHSRC, 2011 Census Data

Chhattisgarh has 7,822,902 Scheduled Tribe population, of this 3,873,191 are males, 3,949,711 are females and 15.3% comprise the child population. Gond, Bhunjia, Baiga, Bisonhorn Maria, Parghi, Muria, Halba, Bhatra, Parja, Dhurvaa, Muriya, Dandami Mariya, Dorla, Dhanwar, Kol, Korwa, Rajgond, Kavar, Bhaiyana, Binjwar, Savra, Manji, Bhayna, Kamar, Munda and Abujmaria are some of the prominent tribes of Chhattisgarh.¹⁴ Some of the major issues faced by these tribal population include - poor literacy rates, the slow pace of development, lack of empowerment and high levels of malnutrition driven by communicable disease, limited livelihood opportunities, high dependency on land and forest produce, improper infrastructure in remote areas. About 52.6% of the total tribal population in the state is below the poverty line in the rural areas which comprises of the majority of tribal.

1.1.2. Human Development Indicators and Sustainable Development Goals

Development challenges faced by Chhattisgarh are diverse and numerous ranging from low social and human development, high incidence of poverty- especially among women and tribal, inequity in access to resources and services, high proportion of vulnerable population, sub-optimal economic productivity, poor social and physical infrastructure, rich natural resources but locked by national policies and the constraints imposed by widespread Left-Wing Extremism-LWE. For the State to grow in an inclusive and holistic manner, whilst achieving accelerated growth, overcoming each of these critical challenges is a must.

As per assessments on human development, the State ranked the lowest on Human Development Index HDI -0.358 among 23 States (India HDR 2011) indicating unequal access and high exclusion. On the measures assessing deprivation of women with respect to the rest of the population- Gender-related Development Index-GDI the (2006), Chhattisgarh had a low GDI of 0.542, placing it 30 among 35 States-suggesting wide disparities in the quality of life among men and women.

On human development indicators, the State has been working hard to come at par with national averages. Differences have narrowed over the past few years but are still significant and their reduction will be a priority for the state. Persistent efforts to expand educational infrastructure and enrolment, the total literacy rate in the State increased from 64.66 to 71.04%, between 2001 and 2011 keeping pace with national literacy, which grew from 64.84 to 74.04% in the same period.¹⁵ Also, the percentage of women with 10 or more years of schooling increased from 12.3% to 26.5% from NFHS-3 to NFHS-4.¹⁶ However, it is pertinent to note that although the average male literacy is at par with the national average, the gender gap in literacy is still wide as per the Census 2011 (Male 81.45% and Female 60.59%).

Impressive progress has been made in the health sector through a reduction in the state-wide gap in health infrastructure, by deploying health functionaries for improved coverage and better outreach. Some of the key findings as per the NFHS-4 (2015-16) include:

- The percentage of institutional deliveries in the state increased significantly from 14.3% in 2005-06 to 70.2% from 2015-16 and consequently, births assisted by a doctor/nurse/other health personnel increased from 41.6% to 78%.
- There has been a significant decline in the Under-five mortality rate (U5MR) in the state over the two NFHS; the U5MR declined from 90 per 1,000 live births to 64 per 1,000 live births
- The Infant Mortality Rate (IMR) declined from 71 per 1,000 live births to 54 per 1,000 live births over the two NHFS assessment. However, on comparing with the national numbers, the state lags behinds on many of these indicators (for instance, the IMR in India stands at 41 per 1,000 live births and the U5MR stands at 50).
- Under the Child Immunizations and Vitamin, A Supplementation, % of Children age 12-23 months fully immunized, increased from 48.7% to 76.4%

In terms of nutritional status among the children and women in the state, though the scenario has shown some degree of improvement, the situation still needs a lot of attention in terms of policies and interventions. 37.60% children of age below five years in Chhattisgarh are suffering from malnutrition

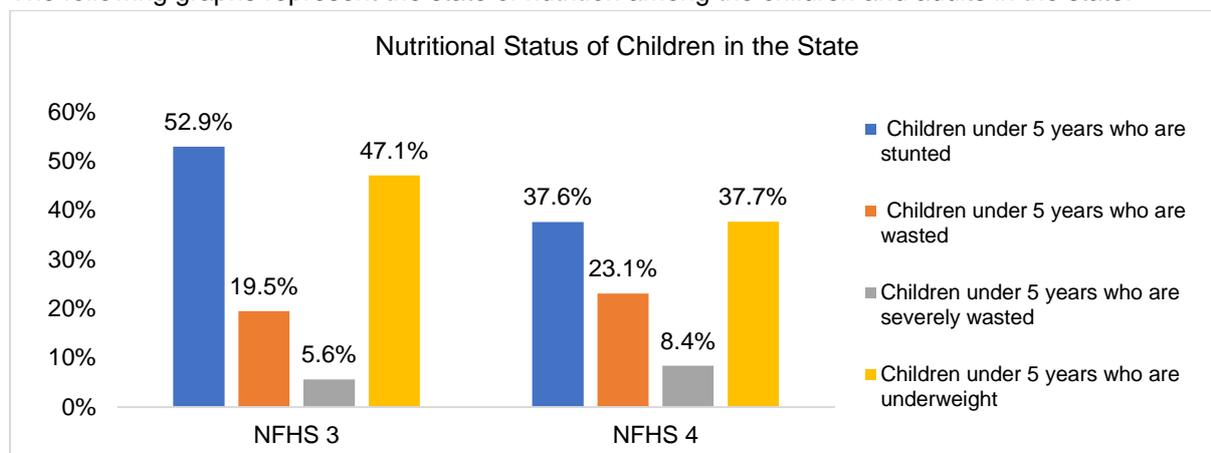
¹⁴ "Tribal Malnutrition In Chhattisgarh And How It Can Be Overcome", Outlook India News, March 2019

¹⁵ Chhattisgarh Factsheet, National Family health Survey (NFHS)-4, 2015-16

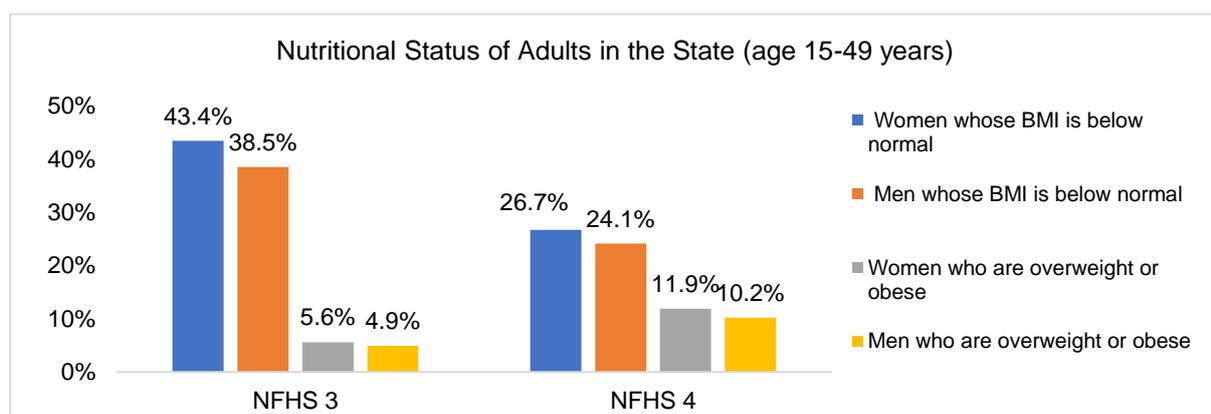
¹⁶ Chhattisgarh Factsheet, National Family health Survey (NFHS)-4, 2015-16

and 41.50% daughters and mothers in the state are suffering from anaemia.¹⁷ The percentage of children under five years who are wasted is 23.1%, indicating acute under-nutrition.

The following graphs represent the state of nutrition among the children and adults in the state.

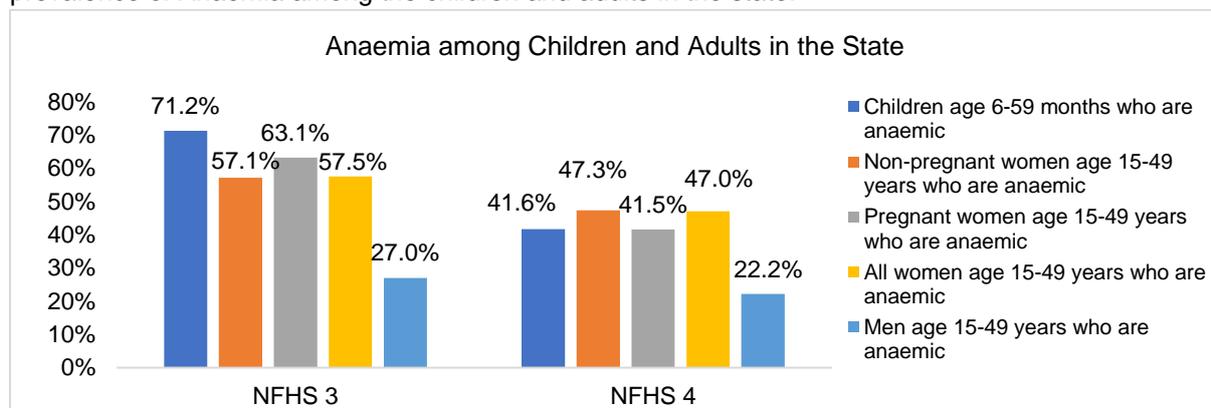


Source: National Family Health Survey 3, 2005-06 (NFHS-3), NFHS-4, 2015-16



Source: National Family Health Survey 3, 2005-06 (NFHS-3), NFHS-4, 2015-16

Anaemia is a serious health problem among women in the state. The overall prevalence rate of anaemia is higher in the rural areas as compared with the urban areas. The following graph represents the prevalence of Anaemia among the children and adults in the state.¹⁸



Source: National Family Health Survey 3, 2005-06 (NFHS-3), NFHS-4, 2015-16

¹⁷ Chhattisgarh Factsheet, National Family health Survey (NFHS)-4, 2015-16

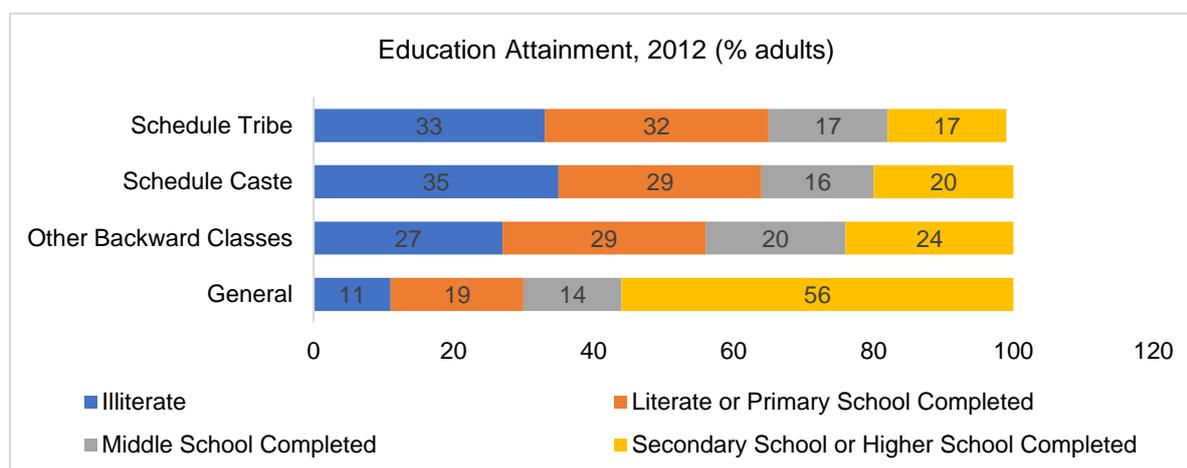
¹⁸ Chhattisgarh Factsheet, NFHS-4, 2015-16

Various government initiatives have been launched over the years which seek to improve the nutrition and health status in the country. These include the Integrated Child Development Services (ICDS), the National Health Mission, the Shishu Sanrakshan Maah, the Village Health, and Nutrition Days (VHNDs), the Mid-Day Meal Scheme, and the setting up of Nutrition Rehabilitation Centres (NRC), among others. However, it is important to realize that improving nutrition and health for women and children requires investment to be made in changing the determinants of poor nutrition and health, using a variety of policy instruments and other efforts. Such policy efforts could be merging of similar schemes and programs targeting the same beneficiary or redesigning with a larger pool of funds and better monitoring structures.

1.1.3. Human Development Indicators in case of tribal context

Tribal literacy is low compared to State average, despite improved outreach and heavy incentive structures built around enrolment and retention. The Gross Enrolment Ratio-GER among ST students at the primary level is 132.8, higher than the state average of 125.5 in 2007-08, but drops significantly at the upper primary level to 75 against 89.8 for Chhattisgarh as a whole, suggesting poor retention in the higher classes. Out of school ST children are also more than the State average and this difference is shKMer in case of girl students - 24.4% against the state average of 19.8%.

The graph below shows the education profile of the across the social classes in the state.¹⁹



Source: World Bank Report, June 2016

Factors like lower retention in higher classes, poor examination results and lack of quality education that contribute to poor tribal education could be targeted. Teacher attendance, expansion of residential facilities in LWE districts, increased use of vernacular medium at the primary level, skill/ life-skill education, review of current incentives and up-gradation of existing schools in scheduled areas should be a priority for tribal education.

Against this backdrop, the central and the state government has launched various schemes and initiatives to boost the socio-economic status of the tribal population in the state. Schemes such as Special Central Assistance to Tribal Sub-Scheme, Development of Particularly Vulnerable Tribal Groups (PVTGs), Institutional Support for Development & Marketing of Tribal Products / Produce, Scholarship for higher education, Scheme of Strengthening Education among ST Girls in Low Literacy Districts and such others have been launched over the past years. However, despite these efforts, progress has been slow due to difficult terrain, policy implementation constraints, security concerns, shortage of private vendors and high project costs.

While the health and education indicators among the tribal communities have improved in the last decade, the gap is still significant. As per NFHS-3, 74% of ST women suffer from anaemia as compared

¹⁹ "Social Inclusion in Chhattisgarh" World Bank Group, June 2016

to the State average of 63.1%. Likewise, Infant Mortality Rate (IMR) for ST children was 90.6 against the State average of 71 per 1000 live births. As per the National Family Health Survey 4, every district in Chhattisgarh has wasting levels higher than 15 percent (rated as very high). Rajnandgaon district has the lowest level of wasting (17.2%) and Bastar has the highest (33.9%).²⁰ As a result, targeted interventions for addressing nutritional deficiencies and health problems among tribal communities, especially the Particularly Vulnerable Tribal Groups through effective human resource management, the revival of indigenous knowledge and packaging health solutions into the agriculture strategies through greater convergence should be given priority.

1.1.3.1. *Sustainable Development Goals (SDGs)*

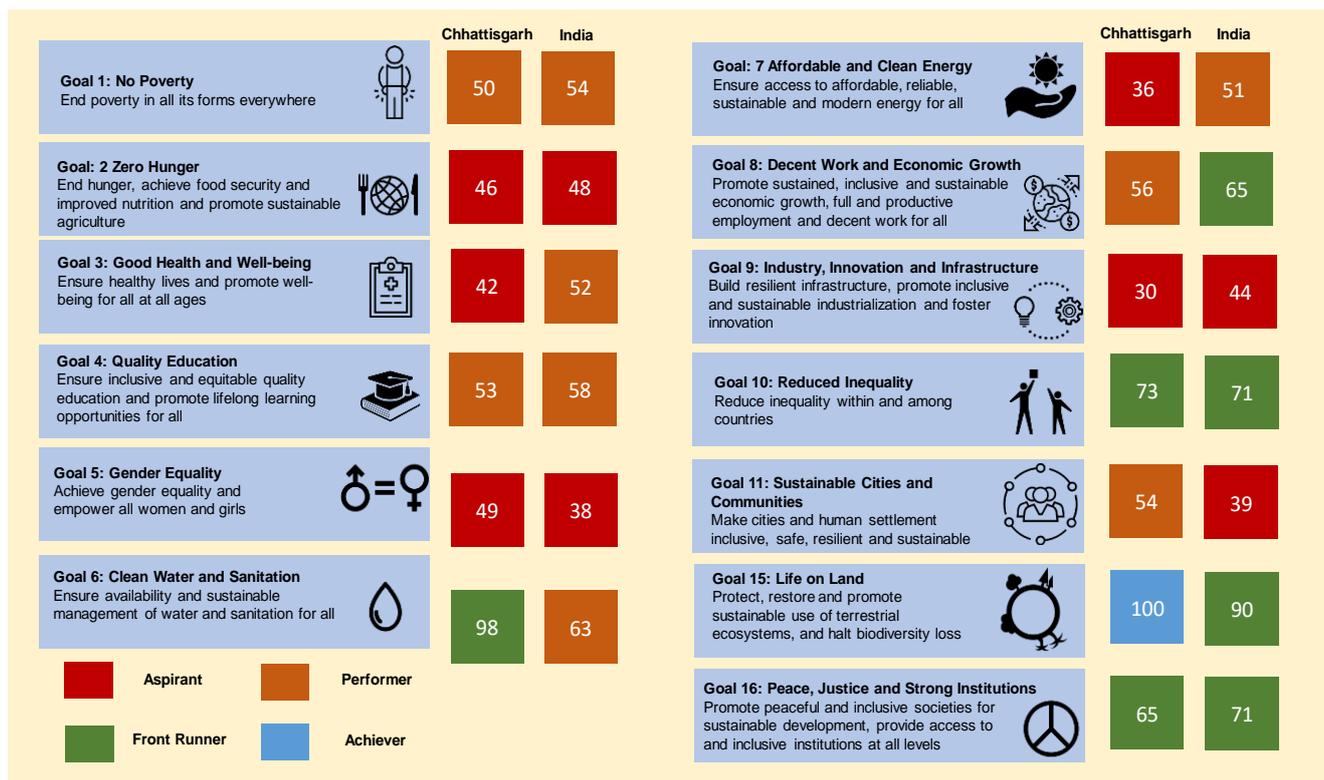
The SDGs are a universal set of 17 Goals and 169 targets to help organize and streamline development actions for greater achievement of human wellbeing while leaving no one behind– by 2030. The SDGs for 2030 evolved from the Millennium Development Goals (MDGs) for 2015. NITI Aayog has constructed the SDG India Index spanning across 13 out of 17 SDGs (except 12, 13, 14 and 17). The Index tracks the progress of all the States and UTs on a set of 62 Priority Indicators, measuring their progress on the outcomes of the interventions and schemes of the Government of India. The SDG India Index is intended to provide a holistic view on the social, economic and environmental status of the country and its States and UTs.

A composite score was computed for each State and UT of India based on their aggregate performance across 13 of the 17 SDGs. The value of the score indicates the average performance of the State/UT towards achieving the 13 SDGs and their respective targets. The score ranges between 0 and 100: If the state scores 100, it means that the state has achieved the national target for 2030. If the state scores 0, it means that the state has been the worst performer. The following are the key themes of the scores; Achiever (Score of 100), Front Runner (65-99), Performer (50-64), Aspirant (0-49).

Chhattisgarh bagged a composite score of 58 on the SD index as against India's average of 57. Out of the total 13 indicators, the state was ranked at Aspirant on five indicators, Front Runner on two indicators, Performer on four indicators and an Achiever on one indicator. The state needs to intensively work towards in the areas of reducing poverty, improving nutrition, increasing food security and sustainable agriculture, improving the overall health and well-being, promoting gender balance and build resilient infrastructure, promoting inclusive and sustainable industrialization. The following figure represents the scores of Chhattisgarh in comparison to India's overall score.²¹

²⁰ "Tribal Malnutrition In Chhattisgarh And How It Can Be Overcome", Outlook India News, March 2019

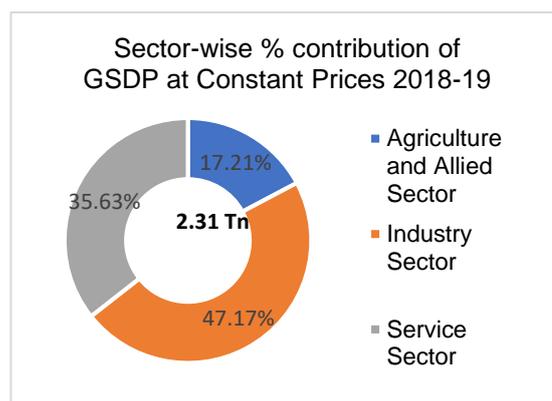
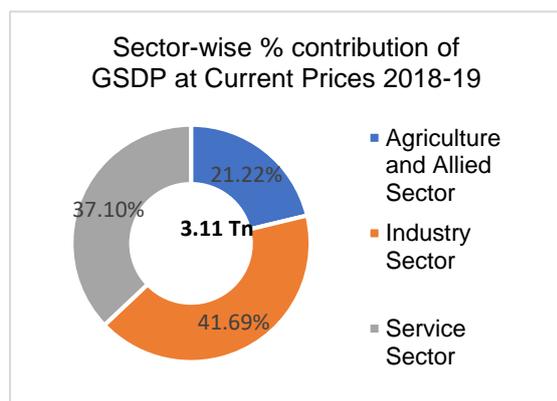
²¹ "Sustainable Development Index India, Baseline Report, 2018, NITI Aayog, United Nations



Source: Sustainable Development Index India, Baseline Report, 2018, NITI Aayog, United Nations

1.2. Chhattisgarh Economic overview

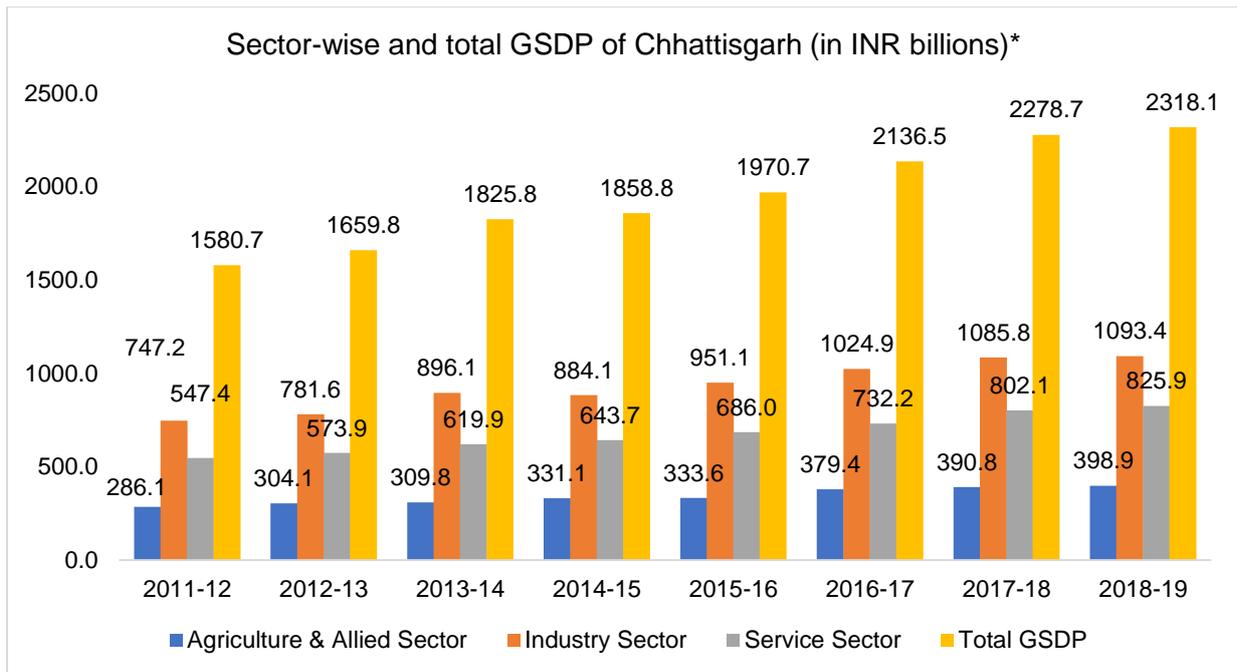
As per an estimate by the latest (2018-19) state economic survey, Gross State Domestic Product (GSDP) of the state at constant prices (2011-12) has registered a growth of 5.6% from INR 1.68 trillion in 2011-12 to INR 2.31 trillion in 2018-19. The agriculture sector registered a Y-o-Y growth 3.9% in 2018-19, while the manufacturing and service sector grew at an annual rate of 5.36% and 6.93%. In 2018-19, manufacturing accounted for the largest contribution to GSDP (47.17%), followed by services (35.63%) and Agriculture (17.21%) sectors.



The following chart represents the trend of growth in the GDP from 2012-13 to 2017-18, along with the sectoral contribution.^{22,23}

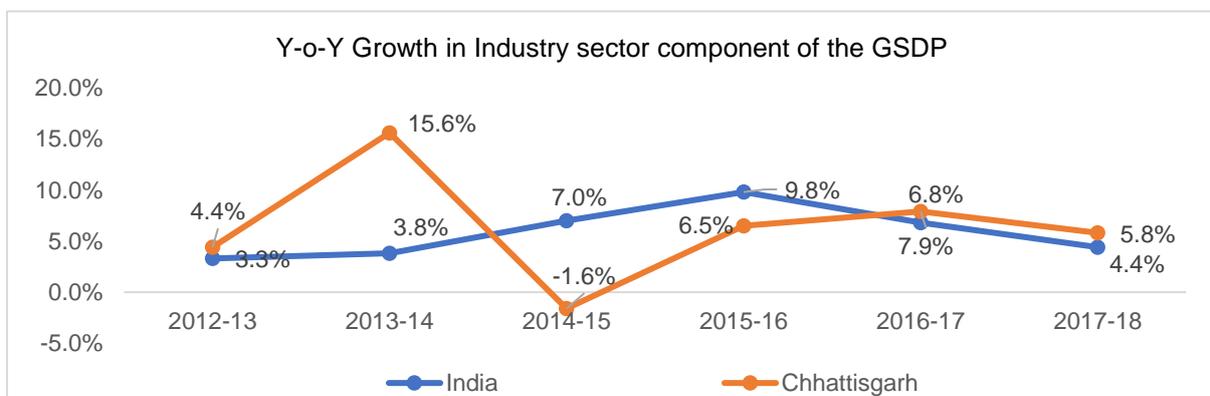
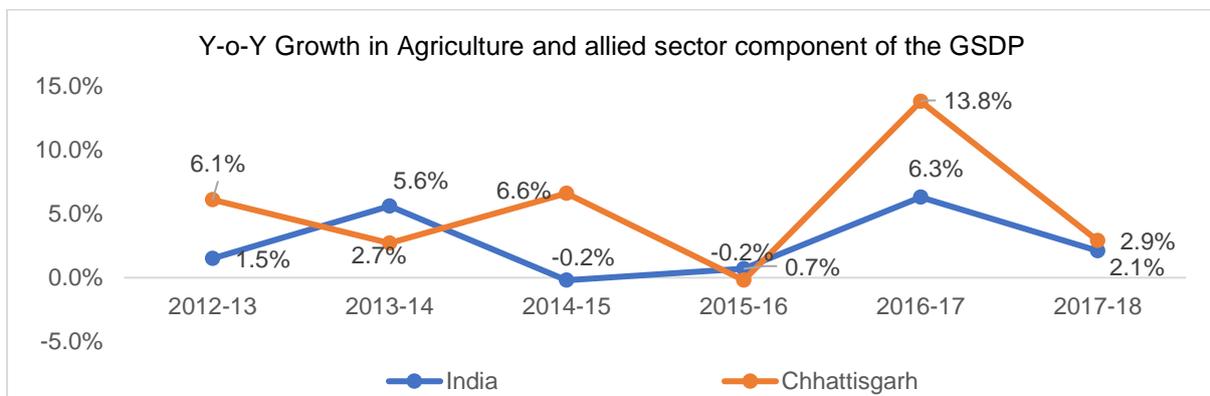
²² "State Economic Survey 2017-18"

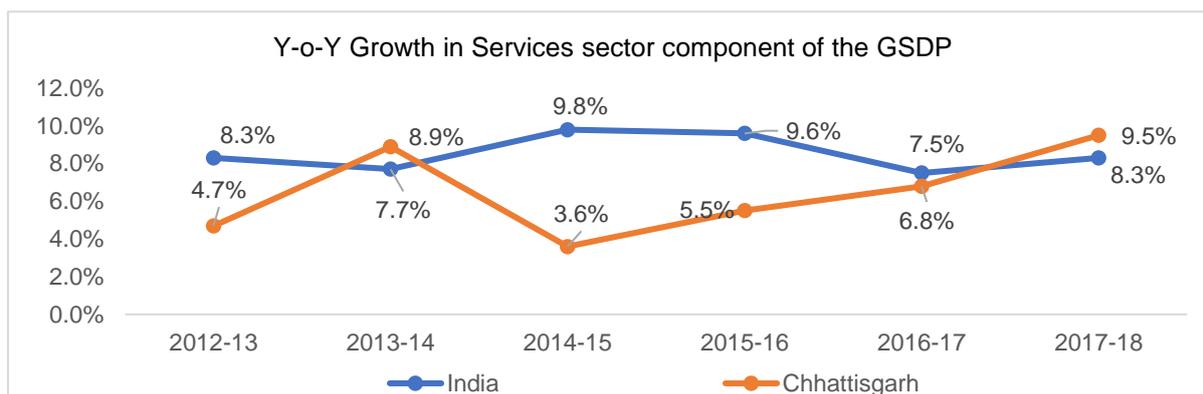
²³ "Estimates of State Domestic Product of Chhattisgarh" Directorate of Economics and Statistics, Chhattisgarh



* At Constant Prices (2011-2012)

On comparing the growth rates across the three sectors in the GSDP / GDP, it can be inferred that the performance of Chhattisgarh has remained robust as against the national growth rates. For instance, in 2017-18, the value of agriculture and allied activities in the state represented a Y-o-Y growth rate of 2.9% as compared to the country growth rate for the sector at 2.1%.





Further, at an overall level, the growth in the state GDP exceeded the growth in India's GDP for years, 2013-14, 2016-17 and 2017-18 at 10%, 8.4%, and 6.6% respectively.²⁴ Within the primary sector, agriculture accounted for a share of about 58%, while the remaining was accounted for by the mining and quarrying activities. Within the agriculture, crops accounted for the majority share (65.2%), followed by forestry (17.2%), livestock (9%) and fishing (8.6%) in the year 2017-18.²⁵

While the GSDP of the state has been on a growth trajectory, about 39.3% of the total population of the state lives below the poverty line as of 2011-12 RBI estimation. The poverty is even high in the rural areas exceeding the state average; about 44.6% of people residing in the rural Chhattisgarh are living below poverty line.²⁶

1.3. Availability of Resources

1.3.1. Water

Nature is very kind to Chhattisgarh in terms of rainfall as compared to several other states of the Union. Average rainfall in the state is around 1400 mm. and about 90% of the total rainfall is confined in the Monsoon season i.e. 15th June to September.²⁷ The rainfall has erratic temporal and spatial distribution in the state. Due to this variation in the rainfall, the agriculture production of the state, which is mainly Paddy, is affected. In fact; every third year, there is always a threat of drought, which is due to the uneven occurrence of rainfall rather than deficient rain

The following table represents an overview of the water resources available in the India compared with availability in India.²⁸

Water Availability	India	Chhattisgarh	%
Surface Water	1,869 BCM	48.2 BCM	3.20
Ground Water	435 BCM	14.5 BCM	3.17
Net Annual Ground-Water Availability	393 BCM	13.68 BCM	3.5
Annual Ground Water Draft	249 BCM	2.8 BCM	1.1
Stage of Ground Water Development	63%	20%	-

Source: Central Ground Water Board", Chhattisgarh, Ministry of Water Resources Government of India, Chhattisgarh Water Resource Department

Estimated surface water flowing through rivers is 48,296 Million Cum. and due to various geographical and interstate constraints, the usable surface water in the state is 41,720 Million Cum.²⁹ Surface water

²⁴ "Estimates of State Domestic Product of Chhattisgarh" Directorate of Economics and Statistics, Chhattisgarh

²⁵ "Estimates of State Domestic Product of Chhattisgarh" Directorate of Economics and Statistics, Chhattisgarh

²⁶ Reserve Bank of India Publications, September 2018

²⁷ "Water Resources and River Basins", Water resources Department, Government of CG

²⁸ "Central Ground Water Board", Chhattisgarh, Ministry of Water Resources Government of India

²⁹ "Water Resources and River Basins", Water resources Department, Government of CG

is used at present is only about 18,249 Million Cum. Estimated ground-water in the state is 14,548 Million Cubic meters and present exploration is about 20%.³⁰

The groundwater development in our State is restricted to the shallow aquifer zone, within 50 m depth and mostly through both in public and private sector. The shallow groundwater structures include dug wells and bore wells in hard rock areas and dug wells, shallow tube wells and filter point tube wells in alluvial terrain. The medium tube wells are also constructed in alluvial areas down to an average depth 40-50m.³¹

Out of the new groundwater availability in the state, 20% of the available groundwater is currently being utilized. Agriculture accounts for the lion share of about 83% in the total groundwater extraction, while the remaining 17% is extracted by the domestic and industrial sectors.³² Since the present level of groundwater exploration in the state is 20% there is further scope for future expansion. A comprehensive master plan for the state, for optimum use of water resources is under preparation. The state is moving ahead towards a more integrated and sustainable approach to water resources management.

Water Resource Assessment of the State

The estimation of ground water resources has been carried out block-wise. The Total Annual Groundwater Recharge of the State has been assessed as 11.57bcm and Annual extractable Ground Water resource is 10.57bcm. The Total Current Annual Ground Water extraction is 4.70bcm and Stage of Ground Water Extraction is 44.43%. Out of 146 blocks, 22 have been categorized as 'Semi-critical', 2 as 'Critical', 122 as 'Safe' and there is no Over-exploited block. As compared to 2013 assessment, there is a reduction in the Total Annual Groundwater Recharge from 12.80 to 11.57bcm, while there is an increase in ground water extraction from 4.40 to 4.70bcm. Stage of ground water extraction has changed from 37% to 44%. The change in area, validated by the Statistical Hand book of the State has resulted in the reduction of the recharge, while the revision of well census data has resulted in the increase in draft.

In Chhattisgarh, the ground water development concentrates in the central part of the state (Chhattisgarh basin) more as compared to the other parts of the state. Therefore, most of the Semi-critical, critical and over exploited blocks are falling in the Central part of the State. While CHIRAAG blocks are concentrated in the north and south parts of the state, the groundwater status across all the selected blocks fall within the category of "Safe", defined the stage of groundwater crisis is less than 70%, where in the ratio depicts the total groundwater extracted to the total groundwater available.

S.No.	District	Assessment Unit Name (Blocks/ Mandals/ Talukas/Firkas)	Stage of Groundwater Extraction (Over-exploited/Critical Semi-critical/Safe)
1.	BalodBazar	Bilaigarh	Safe
2.	Balrampur	Kusmi	Safe
3.	Balrampur	Shankargarh	Safe
4.	Bastar	Bastar	Safe
5.	Bastar	Bakawand	Safe
6.	Bijapur	Bhairamgarh	Safe
7.	Bijapur	Bhopal Patnam	Safe
8.	Dantewara	Dantewara	Safe
9.	Jashpur	Jashpur	Safe
10.	Jashpur	Pathalgaon	Safe
11.	Kanker	Kanker	Safe
12.	Kanker	Charama	Safe

³⁰Water Resources and River Basins", Water resources Department, Government of CG

³¹Central Groundwater Board, Ministry of Water Resources, CG

³²Central Ground Water Board", Chhattisgarh, Ministry of Water Resources Government of India

13.	Koriya	Bharatpur	Safe
14.	Koriya	Sonhat	Safe
15.	Mungeli	Mungeli	Safe
16.	Narayanpur	Narayanpur	Safe
17.	Sukma	Sukma	Safe
18.	Sukma	Chhindigarh	Safe
19.	Surajpur	Odgi	Safe
20.	Surajpur	Pratappur	Safe
21.	Surguja	Lundra	Safe
<p>“Over-Exploited” - Indicating ground water extraction exceeding the annually replenishable ground water recharge</p> <p>“Critical” Indicating ground water extraction is between 90-100 %</p> <p>“Semi-critical” Indicating stage of ground water extraction is between 70% and 90%</p> <p>“Safe” where the stage of Ground water extraction is less than 70 %</p>			

1.3.2. Power

Chhattisgarh is presently one of the few states in India that have surplus power. It is also among the few profitable states in terms of utility-based electricity. Resultantly, the Korba district in Chhattisgarh is known as the power capital of India. As of February 2019, Chhattisgarh had a total installed power generation capacity of 14,044.10 MW.³³ With a liberal state policy with regard to captive power generation, the contribution of the private sector in the installed generation capacity has witnessed significant growth over the years. Some of the key facts related to the power sector of Chhattisgarh include:³⁴

- Currently, the private sector power producers are having an aggregate generation capacity of 9,318 MW.
- Thermal power generation capacity constitutes about 96% of the total generation capacity in the state.
- As per the census of 2011, out of 19,567 villages, 19,225 villages have been electrified as in March 2017 and the State Govt has planned to electrify the remaining villages by 2019.
- The State has registered significant growth in a number of power connection holders. At the time of Chhattisgarh's formation, the State had around 18 lakh power connection holders which are now around 42 lakhs.
- Energization of irrigation pump sets, household electrification, single-point connection for BPL households, LED lamp distribution program are some of the major interventions taken up by the State Government.
- One such intervention is: '24x7 Power for All' (PFA) programme that is implemented by Government of Chhattisgarh (GoC) with active support from Government of India with the objective to connect the unconnected in phased manner to ensure 24x7 quality, reliable and affordable power supply to all Domestic, Commercial Agriculture and Industrial consumers within a fixed time frame.
- 'Sahaj Bijli-Har Ghar Yojana' (Saubhagya Yojana) is implemented by Govt of Chhattisgarh and has announced the target of electrifying nearly six lakh households of 7,000 Majratola in 465 villages by September 2018, under this scheme. As this target is achieved, Chhattisgarh will achieve its target of 100% electrification in the State from its current electrification status of the State is nearly 98.87%.

1.3.3. Minerals

With more than 28 minerals, mineral resources are Chhattisgarh's biggest strength.³⁵ Chhattisgarh contributes about 13% of the minerals produced in the country. It is a leading producer of minerals such

³³ "Chhattisgarh State Report", June 2019, IBEF

³⁴ State Focus Paper 2019-20, NABARD

³⁵ "A Treasure Trove of Minerals" Government of Chhattisgarh, Mineral Resource Department

as coal, iron ore and dolomite. Moreover, considerable reserves of bauxite, limestone and quartzite are available in the state. Chhattisgarh is the only state in India that produces tin concentrates. The state accounts for 35.4% of the tin ore reserves of India. Owing to this huge repository of minerals, the state has been exporting a substantial proportion of the resources. Chhattisgarh's combined exports of aluminium & products, iron & steel, iron ore, and iron & steel products reached US\$ 931.63 million in FY18 and US\$ 266.97 million between Apr-Dec 2018.³⁶ The mineral revenue contributed INR 37.09 billion to the state exchequer during the year 2015-2016. As per the provisions of the Mines and Minerals (Development & Regulation) Amendment Act, 2015, Chhattisgarh has set up District Mineral Foundation in all the 27 districts for collection and channelization of resources that would be utilized for local development in the respective districts.

Production of Major Minerals in Chhattisgarh (in lakh tonne)			
Minerals	2015-16	2016-17	2017-18
Coal	1306.05	1397.22	1425.14
Iron Ore	267.18	310.68	348.56
Limestone	276.67	319.19	351.54
Bauxite	19.91	19.54	19.01
Tin	13451	12120	16757

1.3.4. Forest

Chhattisgarh occupies the third position in India with respect to the forest area. Forest Area of the State is approx. 59772 sq km, which is 43.1% of the State 's geographical area. Based on the interpretation of the satellite data pertaining to October – December 2015, the forest cover in the state is 55,547 sq km, which is 41.09% of the state's geographical area. In terms of forest canopy density classes, the state has 7,064 sq. km under very dense forest, 32,215 sq km under moderately dense forest and 16,268 sq. km under open forest. Forestry in the state contributed 5,70,487 lakh in the state GSDP in 2018-19, growing at 1.8% Y-o-Y from 5,60,184 lakh in 2017-18.³⁷

Forestry is much more important contributor to the economy if it is viewed in a more holistic manner rather than its role as a source of logging, collections of fuelwood, and non-timber forest products in augmenting rural income and livelihoods. Carbon sequestration by forest has paramount significance on containing the ill-effects of greenhouse gas emission on climate change. The following table represents the contribution of forest in the GSDP as per the State Economic Survey 2018-19.³⁸

Description of the contribution of the forest sector in GSDP (at constant prices 2011-12)			
Year	Contribution (in Lakh)	Growth (%)	Contribution to GSDP (%)
2012-13	4,49,230	5.4%	2.89%
2013-14	4,28,448	-4.6%	2.48%
2014-15	5,36,211	25.1%	3.06%
2015-16	5,39,469	0.6%	2.99%
2016-17	5,41,310	0.3%	2.75%
2017-18	5,60,184	3.5%	2.71%
2018-19	5,70,487	1.8%	2.61%

Source: Chhattisgarh State Economic Survey, 2018-19

³⁶ "Chhattisgarh Profile" June 2019, IBEF

³⁷ Chhattisgarh State Economic Survey, 2018-19

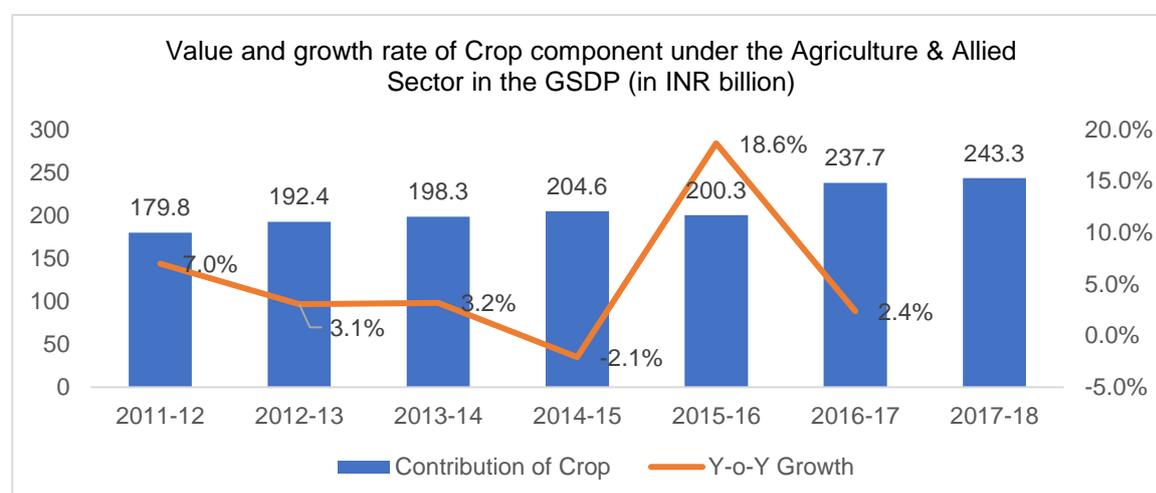
³⁸ Chhattisgarh State Economic Survey, 2018-19

1.4. Sector Profile

1.4.1. Agriculture

Around 80% of employment in the state is dependent on Agriculture. Out of the 37.46 lakh farmer households, 76% fall within the category of small and marginal farmers. Paddy and Maize are the major cereal crops and Arhar and Soyabean major pulse and oilseed crops respectively during the Kharif season in the state. During Rabi season Wheat, Maize, summer paddy constitutes the principal cereal crops while Gram, Peas, Lathyrus are the major pulses. Mustard and linseed are the main oilseed crops during Rabi. The contribution of the crop as a component under the GSDP registered a CAGR of 5.2% from its value of INR 179.8 billion in 2011-12 to INR 243.3 billion in 2017-18. Further, it should be noted that monocropping is the most frequent cropping pattern in the state due to the high dependency on monsoon for irrigation. Approximately about 55% of the state's cultivable land has a low capacity for water retention and hence it is not feasible to take a second crop without stable and adequate irrigation facilities.³⁹

The following chart represents the trend of a sustained rise in the contribution of Crop under the agriculture and allied activities of the state.^{40,41}



Chhattisgarh has been among the country's five states ranked as a major contributor of rice to the central pool and is often termed the "rice bowl of India." Chhattisgarh is home to more than 23,000 native varieties of rice. Nearly 3.7-million-hectare area, (about 80% of net sown area in Kharif) is under paddy cultivation contributing to about 70% of total production. The following table represents the major crops produced in the state along with their production.

Production of Major Crops in Chhattisgarh (in lakh MT)			
Major Crops	2015-16	2016-17	2017-18
Paddy	77.31	82.16	87.93
Wheat	2.37	2.58	1.51
Pulses	2.99	7.43	6.53
Oilseeds	1.30	3.54	1.70
Maize	1.42	5.92	3.09

With production at 87.93 lakh MT, paddy remained the single major crop during the period. Pulses and oilseeds production during 2017-18 was 7.43 lakh MT and 3.54 lakh MT respectively. With a net irrigated area of 4.828 million hectares, the gross sown area in the state has stabilized at 5.788 million

³⁹ "Agriculture and Allied Sector" Chhattisgarh State Centre for Climate Change

⁴⁰ Estimates of State Domestic Product of Chhattisgarh" Directorate of Economics and Statistics, Chhattisgarh

⁴¹ State Economic Survey 2017-18

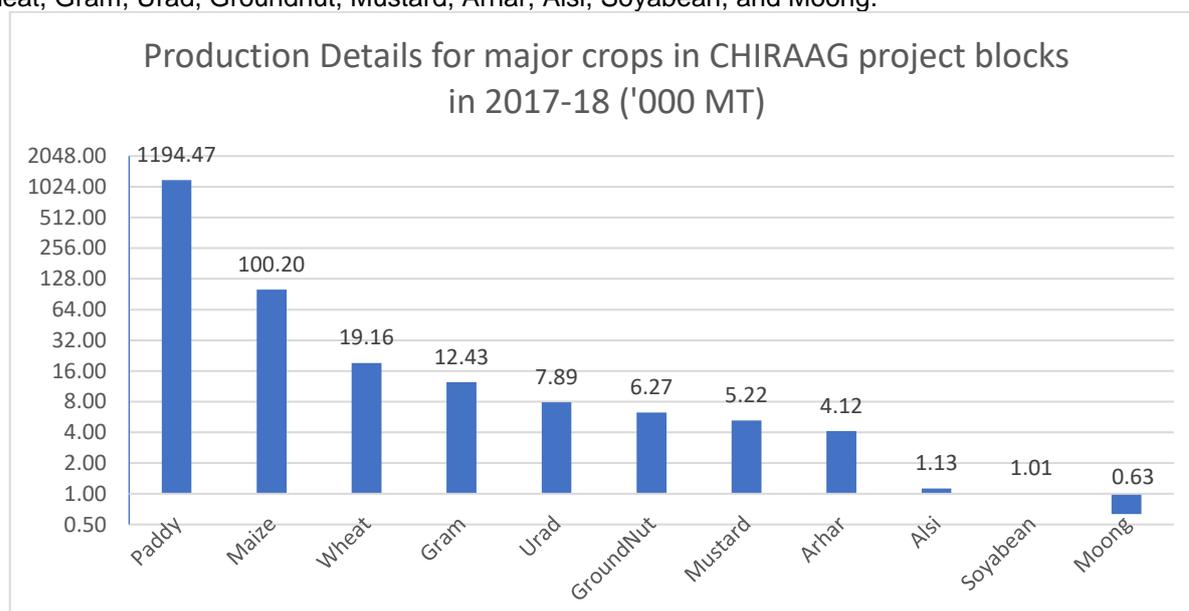
hectares. However, the increasing frequency and intensity of extremes in rainfall and rise in temperature have been affecting the sustained productivity of the crops in the state. In 2019-20, Chhattisgarh's output of foodgrains is likely to decline by about 7.5%.⁴²

Though the productivity of food grains in the state is lower than the national average, the total production of food grains in the state is higher than the state requirement. The state's position as the 'Rice Bowl of Central India' and its reliance on agriculture has led to brisk growth in the food processing industry as a special-thrust industry. Non-Basmati Rice is the most exported commodity from the state. Its exports reached US\$ 531.54 million in FY18 and US\$ 247.18 million between Apr-Dec 2018.⁴³ Given the advantages in the state, there exists a huge scope in developing and strengthening the post-harvest crop management facilities and infrastructures besides focusing on improving and increasing crop production.

Agriculture has been the key focus area for the state government for decades and the state policies have reflected the same. Even in the financial year 2019-20, INR 5,000 crore has been allocated for procurement of food grain crops at the rate of INR 2,500 per quintal. Further, to fight malnutrition and provide for food security, poor families will be provided with 35 kg rice per ration card and as a result INR, 4,000 crores has been allocated for this purpose under the Chief Minister Food Security program.⁴⁴

1.4.1.1. Agriculture Production trends at Project Districts and Blocks⁴⁵

Commodity Trends: The most prominent agriculture commodities at the project locations include; Paddy, Maize, Soyabean, Arhar, Moong, Groundnut, Wheat, Gram, Alsi, and mustard. In the year 2017-18, among these commodities, Paddy is the highest produced commodity, followed by Maize, Wheat, Gram, Urad, Groundnut, Mustard, Arhar, Alsi, Soyabean, and Moong.



As per the data collected from the CHIRAAG block, following table represents the status of major crop production for the Kharif Season and Rabi Season.⁴⁶

Project Blocks	Paddy Production (In MT)	Maize Production (In MT)	Arhar Production (In MT)	Urad production (In MT)	Kulthi Production (in MT)
Division – Bastar, Kharif Season					
Bastar	48645	14022	-	879.4	-

⁴² "Chhattisgarh's foodgrain output likely to decline by about 7.5% in 2019-20", Business Standard News, May 2019.

⁴³ "Chhattisgarh Profile" June 2019, IBEF

⁴⁴ "Chhattisgarh Budget Analysis 2019-20", PRS India Research

⁴⁵ Directorate of Land Records, Government of Chhattisgarh

⁴⁶ Agriculture Block Officers, Data Collected from the Field

Bakawand	28798	11576.	-	561	-
Bhairamgarh	29209	1319	-	108.8	-
Bhopalpatnam	14962	-	-	-	-
Katekalyan	2721.60	31.92	-	-	-
Dantewada	3193.5	131.01	-	-	-
Charama	87163	2093	397	280	-
Narharpur	94016	2858	513	3000	-
Makadi	481100	18000	5180	-	-
Baderajpur	66.56	20.66	-	-	-
Narayanpur	44640	20663	762	-	-
Sukma	45961	4118	-	345	-
Chhindgarh	48200	1591	280	235	-
Division – Raipur, Kharif Season					
Bilaigarh	143640	-	90	535	-
Division – Bilaspur, Kharif Season					
Mungeli	10761.90	-	127.80	-	-

Project Blocks	Wheat Production (In MT)	Maize Production (In MT)	Gram Production (In MT)	Mustard production (In MT)	Linseed Production (in MT)
Division – Bastar, Rabi Season					
Bastar	668.25	8462.40	-	-	-
Bakawand	360.00	3960.00	-	-	-
Bhairamgarh	-	123	46.92	58.2	-
Bhopalpatnam	-	-	-	-	-
Katekalyan	5.10	-	-	64.26	-
Dantewada	2.05	-	-	2.025	-
Charama	789	1608	493	-	138
Narharpur	856	3204	920	-	786
Makadi	-	16000	7800	502	2475
Baderajpur	5.6	279.7	12.6	11.2	7.3
Narayanpur	437	7672	588	-	-
Sukma	-	510	125	-	-
Chhindgarh	-	962	145	-	-
Division – Raipur, Rabi Season					
Bilaigarh	665	-	240	40	-
Division – Bilaspur, Rabi Season					
Mungeli	586.70	-	1661.6	-	-

RANKING OF MAJOR AGRICULTURE PRODUCE AT SELECTED BLOCKS UNDER CHIRAAG										Units: '000 MT
Season	Commodity	Kanker	Kondagon	Dantewada	Bastar	Sukma	Mungeli	Narayanpur	Bijapur	Total
Kharif	Paddy	102.67	82.30	19.95	144.10	91.65	149.18	34.55	27.01	651.41

Kharif	Groundnut	0.00	0.02	0.00	0.01	0.00	0.21	0.00	0.00	0.24
Kharif	Kharif Maize	0.42	16.26	1.63	22.77	2.97	0.00	2.14	0.78	46.97
Kharif	Urad	0.15	1.68	0.05	0.58	0.47	0.01	0.86	0.04	3.84
Kharif	Arhar	0.02	0.01	0.03	0.03	0.18	0.53	0.01	0.00	0.81
Kharif	Moong	0.01	0.04	0.04	0.03	0.43	0.00	0.00	0.07	0.61
Rabi	Gram	0.36	0.24	0.07	0.27	0.00	0.00	0.00	10.93	11.87
Rabi	Wheat	5.39	4.03	1.60	0.58	0.00	0.00	0.13	4.16	15.89
Rabi	Alsi	0.40	0.25	0.11	0.10	0.00	0.00	0.00	0.00	0.86
Rabi	Mustard	1.42	1.09	0.90	0.22	0.11	0.01	0.00	0.00	3.75
Kharif	Soyabean	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00	1.01

Table 1: Major agriculture produce of selected blocks

- As inferred from the above table, Kharif paddy has highest production among selected CHIRAAG blocks followed by Kharif maize.
- Mungeli and Bastar have highest Kharif production at 1,49,18,000 MT and 1,44,10,000 MT respectively.
- Bastar has highest maize production of 22,77,000 MT

Further, the project districts are divided mainly into 3 clusters, as represented below.

Clusters	District	Block
Cluster 1	Bastar	Bakawand
	Bastar	Bastar
	Kondagaon	Baderajpur
	Kondagaon	Makdi
Cluster 2	Bijapur	Bhopalpatnam
	Bijapur	Bheramgarh
	Narayanpur	Narayanpur
	Kanker	Narharpur
Cluster 3	Dantewada	Dantewada
	Dantewada	Katekalyan
	Sukma	Chindgarh
	Sukma	Sukma

- Through cluster analysis, it is observed that paddy has the highest production in all 3 clusters of the selected blocks
- The production of wheat is much lower in the selected blocks
- Since Bastar and Kondagaon share borders, their natural geographic trend could be studied for intensifying agriculture in selected districts of cluster 1. Maize production could be intensified in Bastar and Kondagaon. Urad production in cluster 1 is higher compared to cluster 2 and 3.
- In cluster 2, Bijapur, Narayanpur and Kanker share borders, thus are part of the same cluster. This cluster shows good potential for Urad and Maize other than Paddy.

1.4.2. Irrigation in the state

The state has recognized irrigation as the prime need for the overall development and therefore has given top priority to the development of irrigation potential. It is estimated that about 75% of the gross sown area of the state can be irrigated with the proper use and management of available water resources. However, the total irrigated area under all crops for Chhattisgarh is 31.2%, which is lower

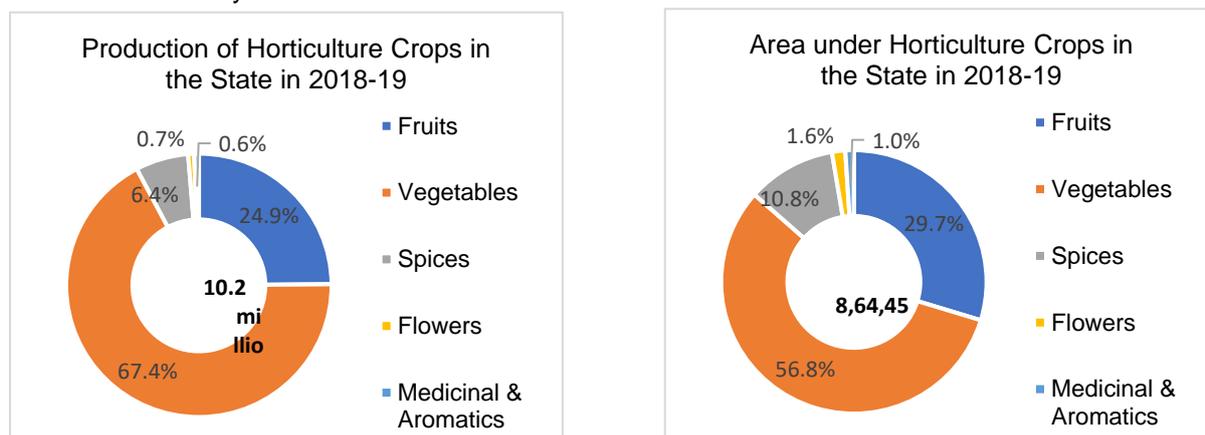
than the national average of 48%⁴⁷, further area under irrigation for pulses is only 15%⁴⁸. The net sown area of the state is 4.683 Million hectares and the gross sown area is 5.561 Million hectares. The total area covered under micro-irrigation is 21.98 Hectares for drip, 2.75 lakh Hectares for sprinkler, 2.97 lakh hectares of total micro-irrigation, which is less than the national average of 3.41 lakh hectares per state.⁴⁹

About 73% of the Chhattisgarh Plains, 97% of the Bastar Plateau, 95% of the northern hills are rainfed. Moreover, the irrigated area available for double cropping is only 87,000 ha in the plains and 2300 ha in Bastar and northern region.⁵⁰ The state government has launched various schemes to increase irrigation facilities and thereby tried to increase the area under double crop.

1.4.3. Horticulture

Diverse agro-climatic conditions prevailing across Chhattisgarh offers significant opportunity in the horticulture sector. In the past seventeen years, acreage of horticulture has increased, and production has grown manifold in the state. In terms of acreage Mango, banana, papaya, guava, lime, cashew-nuts, custard apple, litchi are the major fruits grown in the state. Vegetables account for about 66% of the total production of horticulture crops, followed by fruits (25%), spices (7.4%) and flowers and medicinal and aromatic varieties accounting for the remaining share.

The following graphs below show the total production of horticulture crops and the area under cultivation in the state for the year 2018-19.⁵¹



Horticulture is a sunrise sector in the State. In 2018-19, the Horticulture crops covered an acreage of 8.6 lakh hectares, registering an increase of 3.6% from 7.4 lakh hectares in 2014-15. On the other hand, the production of horticulture crops in the state has increased at a CAGR of 4.4% from 8.5 million tons to 10.2 million tons over the years from 2014-15 to 2018-19. On analysing the growth pattern across the categories, though flowers account for less than 1% of the total production and only about 1.6% of the total area, the category has shown the fastest rise in terms of production from 47,589 tons in 2014-15 to 74,609 tons in 2018-19, rising at a CAGR of 11.3% over the time. Vegetables have been the second-fastest-growing category, expanding at a CAGR of 4.9% 5.6 million tons in 2014-15 to 6.89 million tons in 2018-19. The following table below provides a brief snapshot of the trend in production and area under the cultivation of horticulture crops in the state.

Area and Production of Horticulture Crops in Chhattisgarh

⁴⁷ "Pocket Book of Agricultural Statistics," Government of India, Ministry of Agriculture & Farmers Welfare, Directorate of Economics & Statistics, 2018

⁴⁸ "Pocket Book of Agricultural Statistics," Government of India, Ministry of Agriculture & Farmers Welfare, Directorate of Economics & Statistics, 2018

⁴⁹ "Pocket Book of Agricultural Statistics," Government of India, Ministry of Agriculture & Farmers Welfare, Directorate of Economics & Statistics, 2018

⁵⁰ "Annual Report 2017-18", Indira Gandhi Krishi Vishwavidyalaya

⁵¹ "Horticulture Statistics", Directorate Horticulture and Farm Forestry, Chhattisgarh

Major Crops	2014-15		2015-16		2016-17		2017-18		2018-19		CAGR (%)	
	Area	Produce	Area	Produce	Area	Produce	Area	Produce	Area	Produce	A	P
Fruits	225	2,154.9	239.6	232.8	250.2	2,477.0	261.5	2,592.4	256.7	2,542.2	3.3	4.2
Vegetables	414	5,697.0	438.8	606.1	463.2	6,556.5	474.7	6,754.6	491.2	6,890.5	4.3	4.9
Spices	91	640.0	93.6	659.1	96.6	683.3	100.9	715.5	93.5	659.2	0.7	0.7
Flowers	10	47.6	11.4	52.9	12.1	56.2	13.2	60.6	14.0	74.6	8.1	11.9
Medicinal & Aromatics	7	55.2	8.5	59.9	8.5	60.7	8.7	61.9	8.8	58.0	2.8	1.3
Total	792.1	9,162.6	792.1	9,162.6	830.7	9,833.9	859.1	10,185.2	864.4	10,224.6	3.6	4.4
Note: Area (in 000' Ha.) and Produce (in 000' Tons)												

Chhattisgarh has bagged the national 'Agriculture Leadership Award 2017' for providing a fillip to the cultivation of horticulture-based crops. Chhattisgarh Government has prepared a five-year master plan for the period 2017-18 to 2021-22 that targets to increase the acreage of horticulture crops by about 4.52 lakh hectares. The increase in acreage will cover fruits, vegetables, masala (spices) crops, and flowers. An additional investment of INR 1,405 crore is likely to be incurred on the project.

Some of the activities planned and so far proposed by the state to promote and develop the horticulture sector in the state include:



Additional training centers under PPP will be established

- To be trained in future- **30,000 farmers + 185 employees**
- To be sent overseas on tour- **100 farmers**



Network of cold storages and pack houses to prevent damage of perishable commodities

- Investment in project- **INR 90.81 crore**
- Establishment cost of green house, shed net house and mulching- **INR 321 crore**



At cost of INR 16.74 crore, 20 Horse Power tractors, rotavator, power sprayer, light trap instruments will be supplied to farmers



Proposed to invest **INR 6.40** crore in rearing of honey bees



90 out of 122 nurseries will be upgraded.

- State would cover their losses under Prime Minister Crops' Insurance Scheme



Currently operating Plug Type Vegetable seedling units- 10 minor + 30 major

- Additional establishment in future- **20 minor + 10 major**



Mother Tree Resource Center and State-Level Training Center will be established



Plan to **increase area by 1.37L ha every year** in growing mangoes, guavas, lemon, mala, pomegranate, berries, custard apple, litchi, naspati, peech and plumes

As many as 22 food processing units in Chhattisgarh received total Central assistance of INR 2.48 crores during the financial year 2015-16 under the scheme for Technology Upgradation, Establishment and Modernisation exercises.⁵² It may be recalled that the Central government is making all-out efforts to draw Foreign Direct Investment (FDI) under its 'Make In India' program for drawing investment in the Mega Food Park being set up in Chhattisgarh's Dhamtari district in an area of 68.68 hectares. Notably, the Centre's Scheme of Mega Food Parks is aimed at providing modern infrastructure facilities along the value chain from farm gate to the market with strong backward and forward linkages.

1.4.3.1. *Production Status for the CHIRAAG Districts and Blocks*

The analysis has considered the average data of production, productivity and area for three years: 2015-16, 2016-17 and 2017-18. The data has been analysed at the level of block, district and state level to understand the production and productivity in the respective areas with the three-fold objective:

- To identify top producing commodities in the state and the selected CHIRAAG blocks
- To map the production capacity of CHIRAAG blocks as against the respective districts and state
- To identify potential high producing clusters in CHIRAAG intervention areas

⁵² "C'garh bags national 'Agriculture leadership Award 2017'", Daily Pioneer News, September 2017

Analysis of Vegetable Production Data

- Overall production analysis of the state reveals Kondagaon, Mungeli and Kanker as top 5 CHIRAAG intervention areas for vegetable production, however Mungeli and Sukma are the top districts for vegetable production in terms of productivity

Vegetables – Production, Area, Productivity in CHIRAAG Blocks - Chhattisgarh Plains (Only Mungeli)		
Contribution of CHIRAAG blocks to state's production	4.65%	2,96,241 MT
Productivity of selected blocks (Avg., MT/Ha)	16.66	

Vegetables – Production, Area, Productivity in CHIRAAG Blocks - Bastar Plateau		
Contribution of CHIRAAG blocks to state's production	3.6%	3,58,900 MT
Productivity of selected blocks (Avg., MT/Ha)	13.43	

Top Vegetable Crops in the CHIRAAG Blocks:

Tomato

- Tomato is one of the highest producing crop in the state and the CHIRAAG blocks
- Though the CHIRAAG blocks of Kondagaon, Mungeli and Kanker are top producers of tomato among all selected, the productivity of Kondagaon is low at 11 MT/ha, this presents a need for interventions to promote productivity
- Based on the production CHIRAAG blocks of Mungeli and Kondagaon could be promoted as cluster for tomato production and processing, followed by Kanker and Jagdalpur

Tomato – Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	1.04%	66,420 MT	3.6%
Productivity of selected blocks (Avg., MT/Ha)	32.40		14.36	

Potato

- CHIRAAG blocks of Mungeli, Kanker and Kondagaon are top producers of potato among all selected
- Central hill contributes maximum to the production of potato for selected blocks, and the productivity is also 3rd highest in CHIRAAG blocks

Potato– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.41%	26,332 MT	2.35%
Productivity of selected blocks (Avg., MT/Ha)	18.16		13.26	

Fruits – Production, Area, Productivity in the selected areas and the State

- Among the CHIRAAG blocks Northern hill contributes maximum to the fruit production followed by Bastar and Cental plains
- Among all the CHIRAAG areas, Kondagaon Korja, Sarguja, Narayanpur and Surajpur contributed maximum to the fruits production in the state

Fruits– Production, Area, Productivity in CHIRAAG Blocks - Chhattisgarh Plains (Only Mungeli)		
Contribution of CHIRAAG blocks to state's production	1.18%	75,298 MT
Productivity of selected blocks (Avg., MT/Ha)	10.24	

Fruits– Production, Area, Productivity in CHIRAAG Blocks - Bastar Plateau		
Contribution of CHIRAAG blocks to state's production	6.03%	1,50,320 MT
Productivity of selected blocks (Avg., MT/Ha)	7.72	

Top three fruit crops in CHIRAAG Blocks

Mango

- Narayanpur, Kondagaon and Kanker have highest contribution to the mango production among all the selected areas. However, the productivity of Kanker district is less
- Central region could be promoted as processing hub, for enhanced market connectivity and high-end value chain development
- Southern region of Bastar Plateau Narayanpur, Kondagaon and Dantewada could be developed a production cluster, with focused interventions of productivity enhancement

Mango– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.16%	9,940 MT	1.91%
Productivity of selected blocks (Avg., MT/Ha)	4.24		7	

Banana

- Mungeli and Kondagaon are areas for higher contribution for Banana cultivation in the selected geographies
- Mungeli, Jagdalpur, Kanker, Narayanpur and Kondagaon have higher productivity than the state average
- Based on the primary analysis, Mungeli could be developed into 1-2 clusters for banana production, followed by Jagdalpur, Kondagaon, Dantewada and Sukma
- Further Banana processing plants could be developed at Mungeli based on better market access

Banana– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.40%	25,340 MT	4.08%

Productivity of selected blocks (Avg., MT/Ha)	28	23
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Papaya

- Papaya production is highest in the central plains followed by bastar plateau.
- However, there is a significant gap of 18 points among the avg productivity of centre and state
- Mungeli, Kondagaon and Narayanpur has highest contribution to Papaya production among the selected areas
- In the southern region Kondagaon and Narayanpur have higher contribution to the production of the papaya
- Hence accordingly cluster developed could planned in the central plains, with increased focus on productivity enhancement
- To facilitate higher market price value realization Papaya ripening plant could be developed in the central region, based on market availability and access
- The ripening centres of banana could be leveraged for the ripening of papaya

Papaya– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.22%	14,092 MT	3.07%
Productivity of selected blocks (Avg., MT/Ha)	27.63		21	

Spices – Production, Area, Productivity in the selected areas and the State

- The state has varied variety of spices, with Kondagaon, Jagdalpur and Mungeli contributing maximum to the spice production among the selected areas
- Overall in the state, Balodabazar, Raigarh, Bilaspur, Kabirdham has highest contribution to the spice production in the state
- The productivity is highest for Narayanpur, Jagdalpur and Sukma in the CHIRAAG blocks

Chilli

- Chhattisgarh has high potential for green chillies as it is the most famous form
- Contribution of central and southern region is almost same at 0.13 and 0.57% respectively
- Also, the productivity in the regions is higher as compared to the state productivity of 7.3 MT/ha
- Kondagaon, Jagdalpur, and Mungeli contribute maximum to the production of Chili in the state among the selected areas
- Progressive farmers have set up processing centres, example Spice processing centre of Kartikeya Jaiswal with capacity of 500 MT
- However, the farmer has quotes challenge in reaching out to the larger market and sourcing of the quality produce within the state
- Further Kondagaon, Jagdalpur and Dantewada could be developed as production centres along with setting up of primary processing centres for drying

Chilly – Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.13%	8,579 MT	6.37%
Productivity of selected blocks (Avg., MT/Ha)	9.50		7.72	

Ginger

- Mungeli, Kondagaon and Jagdalpur are highest producing areas among the selected blocks, accordingly Mungeli, Kondagaon, Jagdalpur could be developed as processing centres
- Narayanpur, Mungeli and Dantewada have higher productivity among the selected areas
- Enhanced focus would be required on increasing the area under cultivation and enhancing the productivity for successful development of production clusters
- Potential areas for production cluster lies in the regions of Kondagaon, Narayanpur and Dantewada

Ginger– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.16%	10,067 MT	3.74%
Productivity of selected blocks (Avg., MT/Ha)	17.85		8.01	

Turmeric

- Kondagaon, Jagdalpur and Narayanpur have higher productivity of turmeric in the state
- Production clusters could be developed in Narayanpur, Jagdalpur, Sukma

Turmeric– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.02%	977 MT	7.43%
Productivity of selected blocks (Avg., MT/Ha)	10.51		9.67	

Flower – Production, Area, Productivity in the selected areas and the State

- The state produces average 59125 MT of flowers in a financial year
- Korba, Bilaspur, Mahasamund and Kondagaon being the highest producing districts
- Among the CHIRAAG areas, Mungeli, Kondagaon and Jagdalpur has higher production of Flowers

Marigold

- Mungeli, Kondagaon and Jagdalpur have highest contribution among the selected blocks
- However, productivity of Kondagaon is lowest among the selected blocks.

Marigold– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
	Contribution of CHIRAAG blocks to state's production	0.04%	2,806 MT	7.56%
Productivity of selected blocks (Avg., MT/Ha)	12.09		6.25	

Gladiolus

- Mungeli has highest production of gladiolus and hence could be promoted as production cluster
- Contribution of central region is significant, however in southern region there is not much scope

Gladiolus– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)	Bastar Plateau
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Contribution of CHIRAAG blocks to state's production	0.01%	812 MT	0.48%	32.27 MT
Productivity of selected blocks (Avg., MT/Ha)	4.0		0.56	

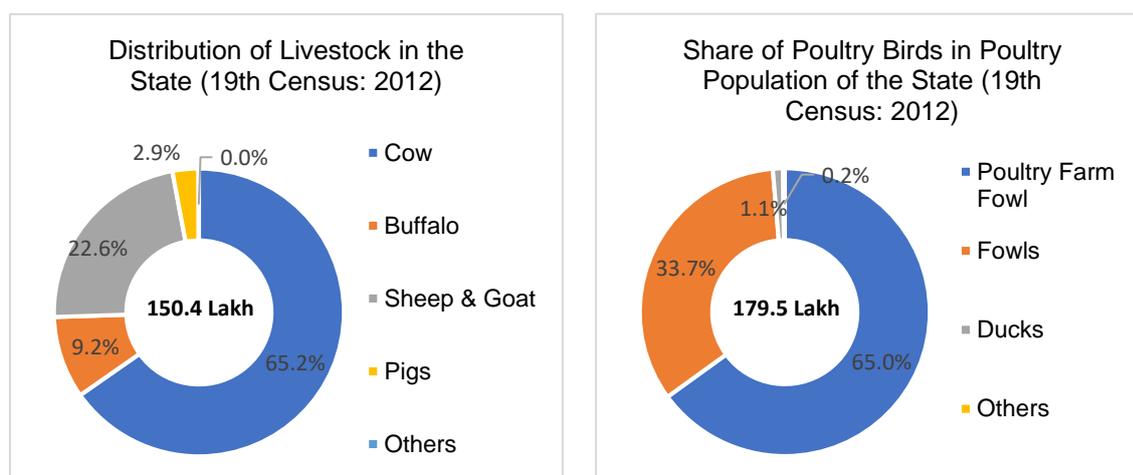
Rose

- Mungeli has the highest contribution to state's production among selected blocks
- However, at the state level, Mahasamund and Bilaspur have highest production
- According the market availability the value chain of the commodity could be developed

Rose– Production, Area, Productivity in CHIRAAG Blocks	Chhattisgarh Plains (Only Mungeli)		Bastar Plateau	
Contribution of CHIRAAG blocks to state's production	0.01%	880 MT	8.72%	410 MT
Productivity of selected blocks (Avg., MT/Ha)	10.11		2.61	

1.4.4. Livestock and Poultry

As per the 19th Livestock Census (2012), the total livestock population (consisting of cattle, buffalo, sheep, goat, pig, horses & ponies, mules, donkeys, and camels), in the state is 150.4 lakh in 2012. The total livestock population has increased by about 4.32% from 144.2 lakh over the previous census conducted in 2007. The sector is dominated by smallholder livestock. Commercial poultry sector, though largely concentrated in select few districts in central plains, has witnessed rapid growth in the past decade with more than 600 Dairy Cooperatives under Chhattisgarh State Cooperative Dairy Federations. The total poultry population in the state has increased by 26.03% to reach 179.5 lakh, compared with the previous census. The following chart represents the percentage share of various categories in the state livestock as per the 19th Census.



Some of the key highlights of the livestock and poultry sector in the state are as mentioned below:⁵³

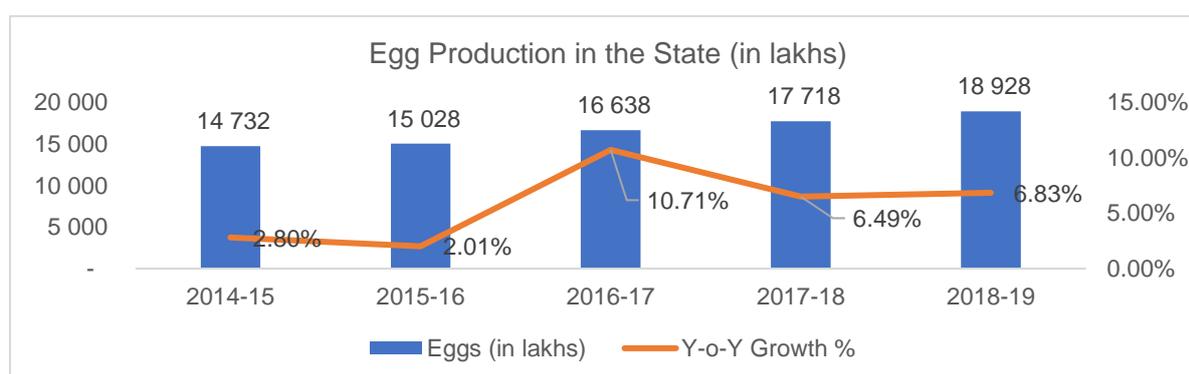
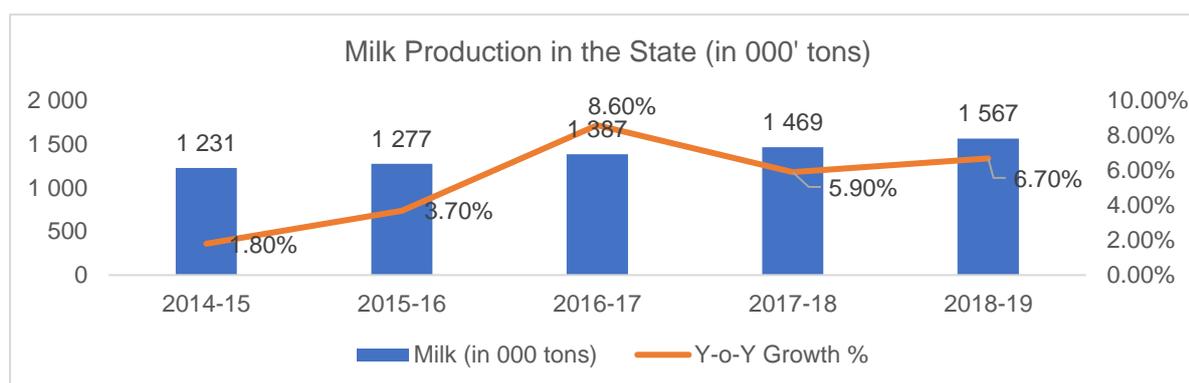
- The total Urban Livestock population of 6.59 Lakhs, contributes around 25% to the total livestock population of the state.
- Livestock population has increased substantially in Bijapur (45.55%), Kondagaon (36.79%), Sukma (23.81%), Kabeerdham (19.19%), Sarguja (14.08%), Korea (13.16%), Balodabazar (8.22%), and Jashpur (7.82%)
- The total bovine population (Cattle and Buffalo) is 112.03 lakhs numbers in 2012 which shows a marginal increase of 0.97% over the previous census.
- The number of milch animals (in-milk and dry together) in cows and buffaloes has increased from 27.34 lakhs to 29.02 lakhs, registering an increase of 6.13%
- The number of animals in-milk in cows and buffaloes has increased from 13.29 lakhs to 13.67 lakhs showing a growth of 2.91%.
- The exotic/crossbred milch cattle (in-milk and dry together) increased from 58.79 thousand to 71.45 thousand, registering an increase of 21.52% whereas the indigenous milch cattle increased from 23.60 lakhs to 25.15 thousand, an increase of 6.58%.
- The total sheep in the state stood at 1.68 lakh numbers in 2012, increased by about 20.03% over census 2007
- The goat population has increased by 16.50% over the previous census and the total goat in the state is 32.25 lakhs numbers in 2012
- The total pigs in the state have increased by 6.29% over the previous census and the total pigs in the state are 4.39 thousand numbers in 2012.

The following comparative table represents changes in the livestock and poultry between the two census periods 2007 and 2012

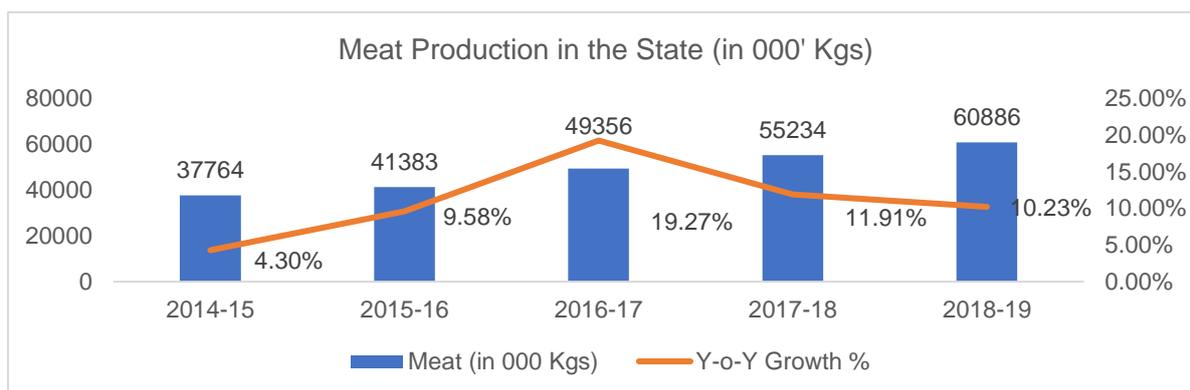
⁵³ 19th Livestock Census 2012, Livestock Development Department Report

Changes in livestock and poultry population in Rural-Urban areas between 18 th and 19 th Census						
Species	Total number of animals in Rural			Total number of animals in Urban		
	2007	2012	% change	2007	2012	% change
Cattle	91,99,682	93,91,846	2.09	2,91,515	4,21,022	44.3
Buffalo	15,20,874	13,06,193	-14.1	83,547	83,990	0.53
Sheep	1,38,126	1,64,166	18.8	2,027	4,057	100.1
Goat	26,88,073	31,13,492	15.8	79,845	1,11,216	39.2
Horses & Ponies	543	2,258	315.8	171	714	317.5
Donkeys	128	601	369.5	20	79	295.0
Pigs	3,96,914	404862	2.0	16,146	34,191	111.7
Dogs	2,44,431	230639	-5.6	30,064	32,869	9.3
Poultry	123,65,624	171,16,727	38.4	18,80,388	8,37,886	-55.4
Total	792.1	9,162.6		9,162.6	830.7	9,833.9

In terms of production and productivity of major livestock products in the state, Chhattisgarh produced 1,567 (000' tons) of milk 18,928 lakh of eggs and 60,886 (000' kgs) of meat in 2018-19. Meat production has shown the highest increase of 10% Y-o-Y growth, followed by milk and eggs at 7% each. The following graph represents the production trend of livestock production in the state over the last five years.⁵⁴



⁵⁴ "Production and Productivity of Major Livestock Produce", Livestock Department Chhattisgarh



In terms of the trend over the last five years, meat production has grown at the fastest rate of 12.7%, almost 1.6 times from 37,764 (000 Kgs) in 2014-15 to 60,886 (000 Kgs) in 2018-19. On the other hand, the production of milk and eggs over the same period has grown at a modest CAGR of 6.2% and 6.5% respectively. The per capita availability of milk in the state has been rising at a very steady rate and is 137 grams per person per day during 2018-19, almost one third as compared with the national per capita milk availability of 375 grams per day in the same year. Lower consumption of milk root back to the cultural habits of the State where milk is not considered as an indispensable part of their diet. The recently launched scheme for distribution flavoured milk in Anganwadi and Schools in Gariaband would aid in eradicating undernourishment and generating demands of milk and milk products in the state.⁵⁵ The following table provides the per capita availability

Per Capita Availability of Major Livestock Produce						
Year	Milk (in Gms/Per day)		Egg (In Count/annually)		Meat (in Kgs/annually)	
	CG	India	CG	India	CG	India
2009-10	126	263	51	51	1.190	3.433
2010-11	128	268	56	52	1.237	3.541
2011-12	129	290	56	55	1.244	4.545
2012-13	131	295	56	57	1.398	4.273
2013-14	130	301	56	58	1.416	4.998
2014-15	130	315	57	62	1.452	5.268
2015-16	132	329	57	64	1.558	5.442
2016-17	134	355	59	69	1.747	-
2017-18	137	375	60	74	1.879	-

1.4.4.1. Production Status of Livestock across CHIRAAG Districts and Blocks⁵⁶

Some of the key points basis the regional analysis of the livestock population across the CHIRAAG blocks are as follows:

- The total Livestock population across the CHIRAAG blocks; Bastar region 54%, and 0.80% plains. CHIRAAG blocks in the selected districts, account for 13% of the total livestock population, 9% of the total cattle (large animals) population and 9% of the total sheep and goat population in the State

It is pertinent to note that the while considering the population in the district only the population in the CHIRAAG blocks within those districts have been considered. The following table represents the overall ranking for the total livestock population across the CHIRAAG districts and the block-wise ranking.

⁵⁵ Chhattisgarh targets touching milk production of 3.7 MMT by 2020", Daily Pioneer News, January 2017

⁵⁶ Directorate of Veterinary Services, Govt of Chhattisgarh

Livestock Category	Top Districts	Total Livestock	Blocks within the top districts		Overall Block-wise Ranking
Total Livestock (total cattle, buffalo, sheep, goat, pig)	Bastar	6,88,389	Bakavand (85%)	Bastar (15%)	Bakavand (5,83,157)
	Bijapur	2,48,873	Bhairamgarh (74%)	Bhopalpattnam (26%)	Bhairamgarh (1,83,257)
	Narayanpur	1,61,208	Narayanpur (100%)	-	Narayanpur (1,61,208)
	Sukma	2,26,969	Chhandgarh (58%)	Sukma (42%)	Chhandgarh (1,31,534)
	Mungeli	1,20,094	Mungeli (100%)	-	Mungeli (1,20,094)

Note: The population in the districts include only the population from the CHIRAAG blocks

Bastar Plateau

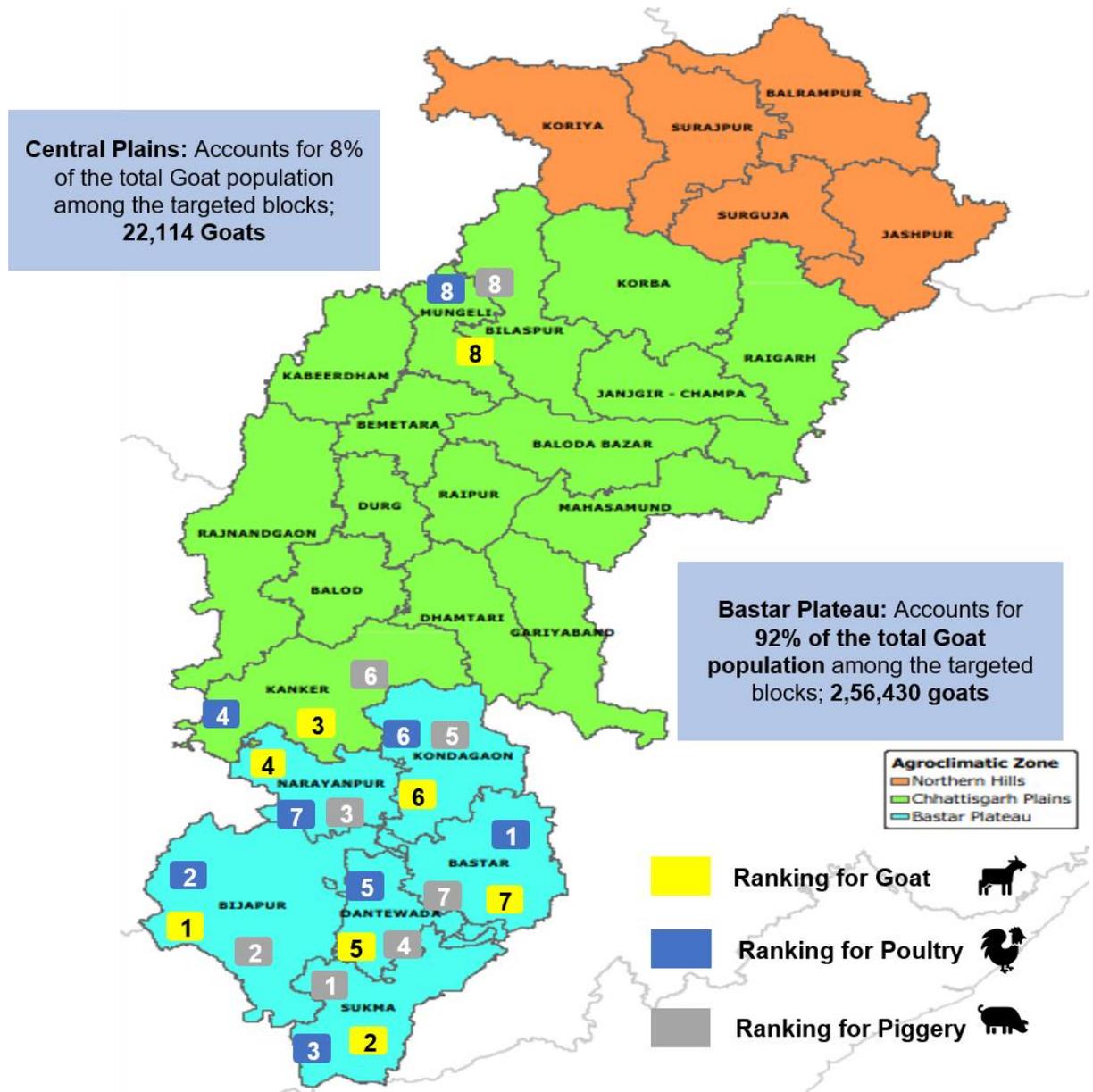
- Accounts for 35% of the total Goat population among the targeted blocks; 2,19,431 goats
 - Bhairamgarh in Bijapur, Narayanpur block in Narayanpur, and Chhandgarh in Sukma have the highest goat population in the region
- Accounts for 58% of the total poultry population; 9,42,673
 - Bastar (both backyard and commercial farm) and Bakavand in Bastar district, and Bairamgarh in Bijapur have the highest poultry population
- Accounts for 73% of the pig population; 91,795
 - Bhairamgarh in Bijapur, Narayanpur in Narayanpur district and Sukma block in Sukma have the highest pig population

Plains (Only Mungeli)

- Accounts for 8% of the total Goat population among the targeted blocks; 22,114 goats
- Accounts for 9.82% of the total cattle population; 96,931
- Accounts for 29% of the horse and ponies population; 28
- Mungeli is the only district among selected CHIRAAG blocks to own mules and donkeys

The following infographics represents the ranking of the small ruminants' population across the CHIRAAG Districts (Ranking has been done only on basis of the population across CHIRAAG blocks within those districts)⁵⁷. It will be appropriate to mention that Central Plains refer to only Mungeli district.

⁵⁷Directorate of Veterinary Services, Govt of Chhattisgarh



Status of Milk Production across CHIRAAG Blocks⁵⁸

CHIRAAG Blocks together account for 8.61% of the total state milk production – approximately 1,34,919 tons

- The Central Plains Region (**Only Mungeli district** under selected CHIRAAG blocks) accounts for 0.84% of the total milk production in the state
 - It accounts for 9.81% of the total production in CHIRAAG blocks (across all the zones)
- The Bastar Plateau Region (under selected CHIRAAG blocks) accounts for 7.77% of the total milk production in the state
 - Selected blocks in Bastar region account for 90% of the total production across all the CHIRAAG blocks
 - Bijapur, Sukma, and Bastar accounts for 52% of the total milk production among all the CHIRAAG blocks in the Bastar region

⁵⁸It is pertinent to note that all the analysis on the department data has been done basis the extrapolated figures provided by the department: Average yield per day per animal, Estimated animals in milk, Average yield rate per layer season, Number of animal slaughtered, Average yield per animal

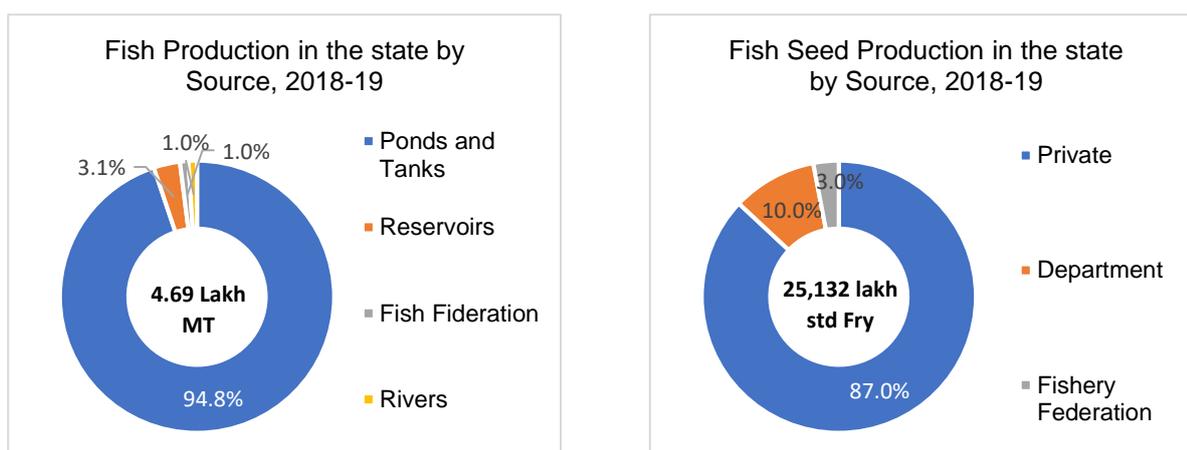
Status of Meat Production across CHIRAAG Blocks⁵⁹

- CHIRAAG Blocks account for **3.03% of the total state meat production** – 1,843 Tons
 - Goatery (including sheep) meat accounts for 58.27% of the total meat production in the selected blocks, while 41.73% is accounted by the poultry meat
 -
- **Central Plains (Only Mungeli):** Out of the Total Estimated Meat Production in the CHIRAAG Districts (across zones), Central accounts for **5.24% of the total meat production**
- **Bastar Plateau:** Out of the Total Estimated Meat Production in the CHIRAAG Blocks (across zones), **Bastar region accounts for 94.76% of the total meat production**
 - Within Bastar region, **Bijapur accounts for 21%**, followed by **Bastar at 18%**, together accounting for **39%** of the total meat production within the southern blocks of CHIRAAG

1.4.5. Fisheries

Chhattisgarh is the 6th largest state in fish seed production in the country and is currently self-sufficient for seed production. Annual fish production in the state which was 1.39 lakh metric tonnes during 2007-08 has gone up to 4.69 lakh metric tonnes in the year 2018-19, registering a CAGR of 11.7%. About 94.7% of the aggregate fish production in the state comes from rural ponds, 4.7% from irrigations tanks and another 0.6% comes from rivers.

The below chart and table represent fish and fish seed production by source and comparative production over the period of the last three years respectively.⁶⁰



Production of Fishes and Fish Seeds in the State over the last three years				
Production Source	Fish Production (in MT)			
	2016-17	2017-18	2018-19	% Growth
Ponds and Tanks	3,56,101	4,36,781	4,45,290	11.8
Reservoirs	17,398	13,241	14,788	-7.8
Fish Federation	953	3,163	4,866	126
Rivers	2,326	3,981	4,819	43.9
Department Tanks	22	0.82	-	-
Total Production	3,76,778	4,57,166.8	4,69,763	11.7
Production Source	Fish Seed Production (Standard Fry in Lakh)			
	2016-17	2017-18	2018-19	% Growth
Department	2,491.9	2,333.3	2,632.6	2.8
Fishery Federation	777.0	620.0	738.9	-2.5
Private	16,481.5	19,232.8	21,760.3	14.9
Total Production	19,750.4	22,186.1	25,131.9	12.8

⁵⁹Ibid

⁶⁰ "Statistics", Department of Fisheries, Chhattisgarh

Chhattisgarh is one of the most water resourceful states in central India gifted with vast aquatic resources comprising village tanks, reservoirs, and ponds in addition to the four major river basins with their tributaries. The state has about 1.64 lakh ha water area available for fish culture. Besides the state have a major riverine system and their tributaries with an area of 3573 km. The following table presents the Chhattisgarh Inland Fishery Resources⁶¹

Chhattisgarh Inland Fishery Resources	
Resources	Area
Total inland water bodies (ha)	1,64,000
Rivers and canals (km)	3573
Reservoirs (ha)	89,000
Tanks and ponds (lakh Ha)	75,000

Reservoirs are the prime inland fisheries resources of India and there is a wide gap between the potential and the actual fish yield which could be easily mitigated through scientific management approaches. The total number of reservoirs in the state is 1,770 covering an area of 0.89 lakh ha. Although 99% reservoir belongs to a small category, they account for about 54% of the total reservoir area in the state. However, despite various schemes implemented through the Fisheries Department and other organizations the resources are yet to be fully exploited.

Seed rearing activity utilizing seasonal ponds has emerged as a lucrative source of additional income for fish farmers in Chhattisgarh. The requirement of fish seed in the state with standard fry is 610 million annually and the state has 69 hatcheries to satisfy the demand. The majority of the hatcheries are under the state department followed by the private and fish federations. Therefore, the existing 69 number of circular hatcheries, 60 number of fish farms and 721 of individual rearing space with available water area of 207.58 hectares are involved in fish seed production in government and private sector.

The following table provides a snapshot of the fish seed production unit in Chhattisgarh⁶²

Fish seed production unit in Chhattisgarh								
Particulars	Circular hatchery			Fish seed farm		Rearing pond		
	Number	Water (ha)	Area	Number	Water Area (ha)	Number	Water (ha)	Area
State Department	34	77.02		38	46.63	589	153.29	
Fish Federation	9	39.69		01	0.50	05	1.0	
Private sector	26	78.00		21	28.93	127	53.29	
Total	69	194.41		60	76.06	721	207.58	

The top ten districts in the state contribute 69% of the total fish production are Janjgir, Mahasamund, Rajanandgaon, Raigarh, Balodabajar, Raipur, Bilaspur, Dhamtari, Korba, Balod. The districts with poor production are Bijapur, Sukama, Dhantwera, and Narayanpur. Further, on comparing the national average the productivity of fish in the state is higher than the national average and with many other states in the country. Such robust growth in the fisheries sector of the state can be attributed to the leasing policies, implementation of RKVY, and participation of public in boosting the aquaculture.

1.4.5.1. Production Status for the CHIRAAG Districts and Blocks⁶³

Fish production in the selected CHIRAAG Blocks accounts for a miniscule **share of 0.38% of the total fish production in the state; 1,768.4 MT**

⁶¹ Department of Fisheries, Chhattisgarh

⁶² Department of Fisheries, Chhattisgarh

⁶³ Directorate of Fisheries, Government of Chhattisgarh

- In terms of fish Productivity (fishes per ha of pond), Narayanpur has the highest productivity (500 fishes per Ha of Pond) (across all the CHIRAAG blocks), followed by Mungeli, Sukma, Bijapur and Dantewada

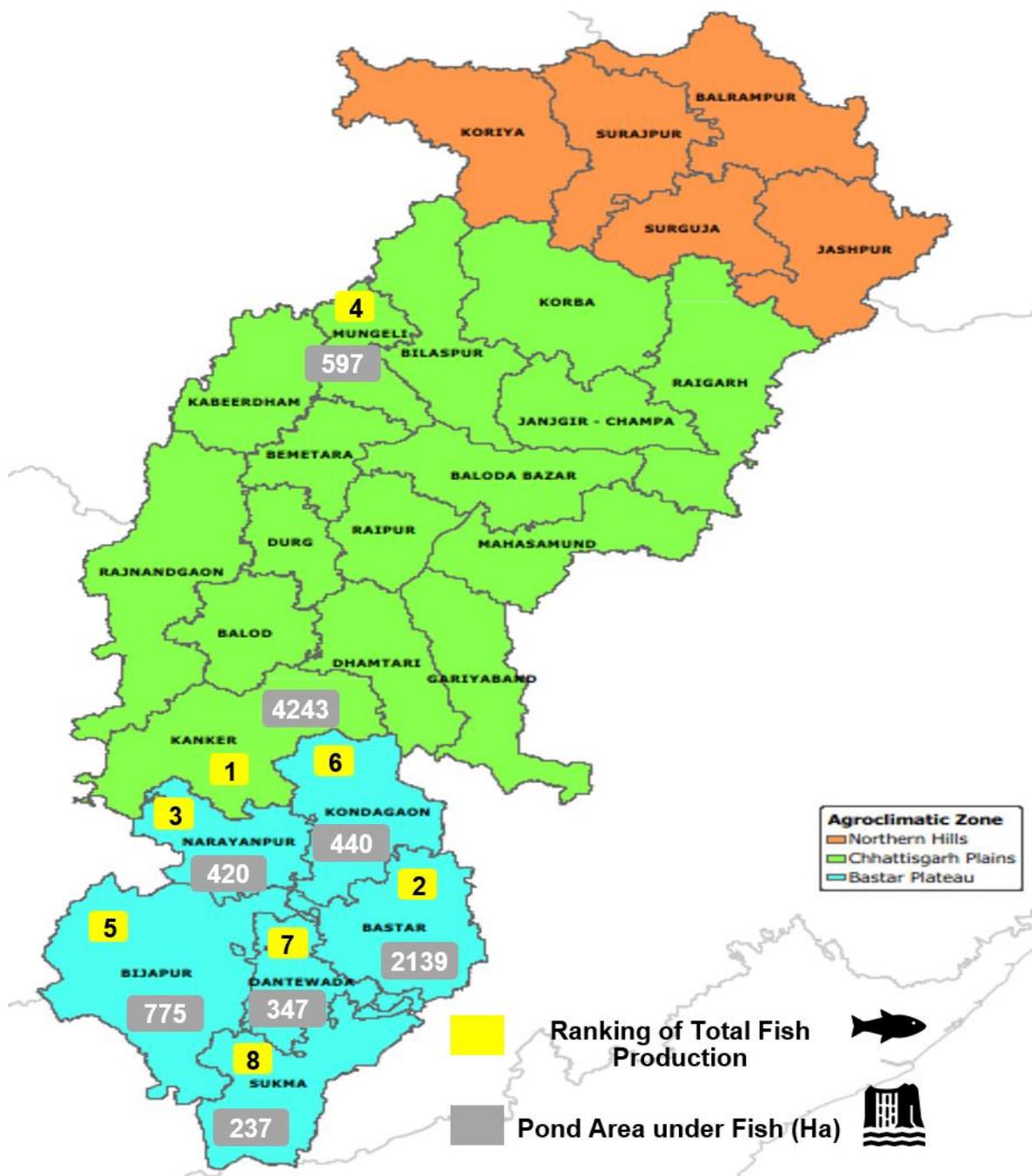
Central Region (Only Mungeli): Out of the total production within CHIRAAG blocks in the selected districts (all zones), Mungeli accounts for 11% share in the total production

- The productivity of Mungeli is 333 fishes per Ha of pond

Bastar Plateau: Out of the total production within CHIRAAG blocks in the selected districts (all zones), the southern region accounts for 89% of the total production

- Within the southern region, Kanker (34%), Bastar (17%) and Narayanpur (12%), together account for 71% of the total production

The following figure below depicts the ranking of the total fish production across the selected CHIRAAG districts (considering the production from only the CHIRAAG blocks) and the total pond area under fish cultivation. It will be appropriate to mention that Central Plains accounts for only Mungeli district.



1.4.6. Sericulture

Chhattisgarh is one of the dominating states in silk production mainly in Tasar, Cocoon & it's silk and the state ranks 2nd in position after Jharkhand. Chhattisgarh is getting its name as leading state in Tasar cocoon production in India. Government of the state is determined to enhance forest based rural activities in the village level so Tasar culture activity is being implemented in all districts.

Some of the key features of the sericulture sector in the state are as follows:

- There are two types of cocoons being produced in the state; Tasar silk cocoon production and Mulberry silk cocoon production
- Currently 340 MT of Raw silk is being produced in Chhattisgarh.
- In the year 2017-18 domesticated and nature grown cocoon production was 28.27 crores in No and the raw silk production was 522.80 MT, it is the maximum production after the formation of the state.

- Tasar silkworm rearing is done in large scale in the district Raigarh, Janjgir, Bilaspur, Jashpur, Kanker, Bastar, Sarguja of the state.
- Tasar cocoon production activity is providing employment to below poverty line, socially and economically backward people, especially women in their own villages.
- Currently two types of tasar cocoons are being procured by rural people; the first variety is that of a domesticated cocoon harvested from the systematic plantation of Terminalia arjuna (Arjuna Tree) and Terminalia Tomentosa (Saja Tree) and nearby food plants content forest area.
- There are 44,537 beneficiaries are getting benefit by different activities of tasar culture and this work is main work for their livelihood.
- In the state 13 cocoon banks and 5 yarn banks are working as marketing platform to the beneficiaries.

Present Situation of Sericulture Development in the state

Tasar cocoon production is main work in the state whereas it also has two types. Nature grown Raily and Lariya cocoon multiplication and production. Antheraea mylitta raily and Antheraea mylitta lariya are natural varieties found in the forest.

- **Antheraea mylitta daba cocoons:** About 83,439 people are benefiting as beneficiaries and labourers from its production. Though this is a nature grown variety, but it is also domesticated by rural people since long time. This variety is reared in the systematic plantation and forest. Currently there are 411 tasar centers under operation and the production covers the plantation area of 8,445 hectare, while 4,681-hectare area is been covered in by forest. 11,772 people have been engaged in tasar silkworm rearing. The state has produced about 9.48 crore of daba cocoons.
- **Antheraea mylitta raily/new nature grown cocoons:** It is very important to know that the Antheraea mylitta raily is found in Bastar division. Jagdalpur, Dantewada, Sukma, Narayanpur, Kondagaon, Kanker, Bijapur are included, while Antheraea mylitta lariya and new variety which is developed from moth release program of Antheraea mylitta daba is found in the following district Gariyaband, Dhamtari, Raipur, Baloda bazaar, Balod, Rajnandgaon, Kawardha, Mungeli, Bilaspur, Janjgir, Korba, Raigarh, Ambikapur, Jashpur, Surajpur, Balrampur and Koriya. Both of these districts cover 13 of the total selected CHIRAAG districts.
- Presently under Mulberry Sericulture, the sericulture sector in the state has an area of 1494 acres under mulberry plantation, out of which total effective area available is 606 acres. And 67 departmental farms have been established.
- The department provides free of cost technical guidance to the cultivators. Based on quality, cost of white mulberry cocoons (Bivoltine BY x BY) from Rs. 168/- Per Kg and for yellow cocoons (multi voltine Multi x BY), from Rs. 144/- per Kg is available

Particulars	Unit	2016-17	2017-18	2018-19	2019-20 till Sept.
Nature Grown Cocoon	In Lakh no.	1110	1975	991	354
Tasar Silk Worm Seed	In Lakh no.	28.29	27.86	29.68	15.71
Reared Variety of Tasar Cocoon	In Lakh no.	874	855	948	273
Tasar Raw silk Production	In MT	353	523	340	112
Mulberry Cocoon Production	In Kg.	60,501	68639	68914	12275

Opportunity for Sericulture Development in the state: There was 4000 MTs silk demanded in the state. However due to the lack of supply of the silk many handlooms have become non-operational and the weavers have rather engaged their self in cotton-based looms. Currently 1000 MTs of silk is required where about 500 MTs are supplied and used as imported silk while rest 500 MTs which are used as weft is imported from Jharkhand. Further, various villagers have been demanding sericulture projects

in their villages. This huge difference between demand and supply is because of poor and inadequate sericulture infrastructure and capacity in the state. There are 22 districts have been selected for the extension and development of the sericulture.

Tasar cocoon reeling & spinning work

- Reeling & Spinning machines allotted to self help groups & functioning beneficiaries:-
- At present 1192 reeling machines, 842 spinning machines, 650 buniyad and other charkhas have been given. Thus 2684 machines have been given where 1881 are in function.
- For the supply of the raw silk to the weaver according to their demand in the year 2003-04 65 MTs had been produced which has increased 340 MT in the year 2018-19 and supply of the raw silk to the weavers is kept continued.

1.4.6.1. *Production Status for the CHIRAAG Districts and Blocks*

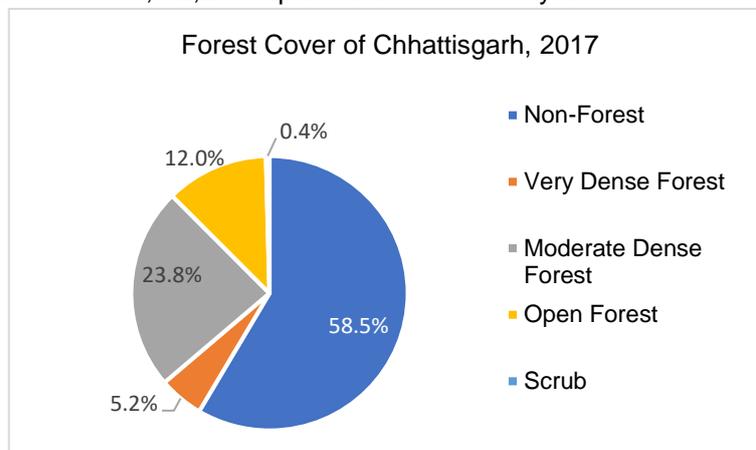
- Charama, Bastar and Bakavand are the top Tasar producing blocks across the targeted CHIRAAG blocks, accounting for 81% of the total production among all the CHIRAAG blocks
- Charama, Narayanpur, Makdi and Bastar are the top Mulberry producing blocks across the targeted CHIRAAG blocks, accounting for 84% of the total production among all the CHIRAAG blocks
- Region-wise – The selected blocks across the Bastar Plateau account for 98% of the total Production (Tasar and Mulberry) and the Chhattisgarh Plains contribute towards 2.

Blocks	Average Production of Tasar cocoons (in Numbers)*	Average Production of Mulberry cocoons) (in Kgs)*
Charama	17,74,366	2604.50
Bastar	10,67,805	1742.55
Bakavand	7,48,603	-
Narharpur	2,98,317	-
Narayanpur	2,50,354	2189.00
Mungeli	96,961	115.87
Dantewada	75,327	588.75
Bhairamgarh	47,423	-
Bhopalpattnam	37,489	-
Sukma	35,491	26.25
Bade Rajpur	12,613	910.37
Makdi	-	1990.72
Note: Average Production has been taken for the last 4 years from 2015-16 to 2018-19 Figures in Bold represent the blocks with highest average production of Tasar and Mulberry		

1.4.7. Forest Resource

Chhattisgarh occupies the third position in India with respect to the forest area. Forest Area of the State approx. 59772 sq km, which is 44.21% of the State 's geographical area. Based on the interpretation of the satellite data pertaining to October – December 2015, the forest cover in the state is 55,547 sq km, which is 41.09% of the state's geographical area. In terms of forest canopy density classes, the state has 7,064 sq. km under very dense forest, 32,215 sq km under moderately dense forest and 16,268 sq. km under open forest.

The following chart represents the forest cover of Chhattisgarh as per the State of Forest Report 2017, by the Forest Survey of India, Ministry of Environment and Forest.⁶⁴ The Reserved, Protected and Unclassed forests are 43.14%, 40.21%, and 16.65% respectively of the recorded forest area. Some of the districts with a forest cover of more than 40% include; Bijapur (76.28%), Bastar Dantewada (53.7%), Dhamtari (45.47%), Korba (51.3%), Koriya (61.98%), Narayanpur (81.7%), Surjuga (44.95%), Uttar Bastar Kanker (47.38%).⁶⁵



The forests of Chhattisgarh are very rich in these Minor Forest Produce (MFP). MFP includes the products from various forest species in the form of fruits, seeds, leaves, barks, roots, flowers, and grasses, etc., including an entire plant of medicinal herbs/shrubs. There are many MFP species of commercial importance in the state. Tendu leaves and Gums, Babool and Khair are the nationalized MFP in the state. Other minor forests produce collected from the forest in the state are sal seed, Harra, Tamarind, Chironjee Guthli, Lac, and Mahua seed.

To promote the trade and development of these minor forest produces (MFPs) in the interest of MFP collectors, mostly tribals, Chhattisgarh State Minor Forest Produce (Trading and Development Co-operative Federation) (CGMFP) was established in 2000. CGMFP was established as an apex organization with a three-tier co-operative structure after the division of the erstwhile Madhya Pradesh state. The main function of the CGMFP includes the following:

- Collection trading of Nationalized as well as non-nationalized MFP
- Implementation of various Socio-economic Welfare Schemes for the tendu leaves gatherer families like free footwear distribution, insurance schemes for the members of Tendu leave gatherers, profit distribution from the trade of Tendu leaves in the form of differed wages, etc.,
- Ensure proper price realization for MFP through MSP scheme
- Promotion of MSP-based processing units
- Conservation, development and sustainable utilization of Minor Forest Produce
- Promotions of cultivation of Minor Forest Produce Species including medicinal, aromatic and dye plants.

To ensure that MFP gatherers should get proper prices for their produce, Govt. of India introduced "Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and Development of Value Chain for MFP" scheme in 2013-14. Under this scheme, the MSP for important MFPs has been fixed. In Chhattisgarh Sal Seed, Harra, Tamarind, Chironjee Guthli, Lac Kusumi, Lac Ragini and Mahua Seed are purchased under this scheme.

⁶⁴ "State of Forest Resource", Ministry of Environment and Forest, Forest Survey of India, 2017

⁶⁵ "State of Forest Resource", Ministry of Environment and Forest, Forest Survey of India, 2017

State Government has procured the following forest produce during the past three years with their values are as follows:⁶⁶⁶⁷

Commodity	2015-16		2016-17		2017-18		2018-19 (as on 30.09.2018)	
	Qty (Quintal)	Value (Cr)	Qty (Quintal)	Value (Cr)	Qty (Quintal)	Value (Cr)	Qty (Quintal)	Value (Cr)
Lac Kusumi	3337	11.50	3506	12.08	23	0.04	851.83	1.91
Lac Rangini	1400	3.48	1011	2.51	156	0.18	365.021	0.54
Harra	57127	8.00	3088	0.34	279	0.03	-	-
Sal Seed	111983	14.51	2808	0.36	123126	14.36	1,224.68	0.16
Chironji	6329	6.97	7754	8.55	136	0.10	1472.71	1.70
Mahua seed	4856	1.17	51	0.12	1490	0.33	4.50	0.001

Note: For the year 2018-19, the collection of Sal Seed, Chironji Guthli, Mahua Seed, Lac (Kusumi & Rangini) are in progress.

The importance of MFPs cannot be undermined in sustaining the livelihoods, more specifically of the tribal population living in the forested areas of the state. A recent research study (The Livelihood School, BASIX, 2010) shows that in Chhattisgarh, the involvement of women in the Non-Wood Forest Produce (NTFP) economy is very high, tribal households depend on the NTFP economy more than non-tribal households and poorer households more than comparatively better-off ones.

Recognizing the critical importance which MFP hold for tribals and its potential to create large scale employment opportunity thereby, helping in reducing poverty and increasing empowerment of tribals particularly women and poor people of the poorest and backward districts of the country, the state government bodies are trying to formulate MFP progressive schemes and initiatives to provide impetus to the tribal economy of the state.

For instance, in 2018, The Ministry of Tribal affairs approved the establishment of the first multipurpose “Van Dhan Vikas Kendra” on a pilot basis for establishment in Bijapur District of Chhattisgarh State for providing skill upgradation and capacity building training and setting up of primary processing and value addition facility. This first model Van Dhan Vikas Kendra is being implemented for training of 300 beneficiaries with a total outlay of Rs 43.38 lakhs for training, providing equipment & tools for primary level processing and infrastructure & building for housing the Kendra. This Kendra to start with will have processing facility for Tamarind brick making, Mahua flower storage facility and chironjee cleaning and packaging.⁶⁸

1.4.8. Nutrition

Nutrition is the cross-cutting element in the project CHIRAAG as nutrition enhancement is one of the key objectives of the project. As per the Food and Nutrition Security Analysis report, Chhattisgarh is the only state in the country having per capita per day intake of protein less than the Recommended Dietary Allowance (RDA) level in both the years of evaluation – 2004-05 and 2011-12. Further, the state also has low per capita per day fat intake of 27.9 grams as compared to the RDA standards. The poor nutritional levels are prevalent mostly in tribal communities.

Among all the tribes the group that gets most affected are women and children. Tribal women with poor intake of protein and energy are likely to give birth to a Low Birth Weight infant. Although malnutrition is prevalent among all segments of the population, poor nutrition among females begins at infancy and continues throughout the lifetime. The national family health survey conducted in 2015-16 had shown that 37% of children in Chhattisgarh were malnourished. In Bastar, for instance, about 65 per cent of women and mothers between the ages of 15 and 49 years have anaemia, a level public health

⁶⁶ State Focus Paper 2019-20, NABARD, June 2019

⁶⁷ “Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and Development of Value Chain for MFP”, Chhattisgarh State Minor Forest Produce (Trading and Development) Co-operative Federation Ltd.

⁶⁸ Ministry of Tribal Affairs

researcher describe as “alarming”. Health officials believe a scheme to channel special funds to support health and nutrition for vulnerable communities is also likely to help fight anaemia.

Following figure below shows the current status of malnutrition and food consumption across the major districts of the state⁶⁹

District	Poverty ratio	Malnutrition			% of STs Within district	ST-Diet Quality		ST-Food Consumption (FBDG)			
		Stunting	Wasting	Anemia		HDDS	Consumption of fruits (100g)	Consumption of dairy (300g)	Consumption of proteins (90g)	Consumption of DGLV (100g)	Consumption of Other Veg (200g)
India		38.4	21	53							
Chhattisgarh		37.6	23.1	47							
Surguja	51.5	32.3	22.3	35.1	62.52	9.818				11.74	75.84
Jashpur	48.7	35.1	18.6	35.7	69.72	9.544	13.66	32	55.65	17.54	87.25
Koriya	45.5	30.6	29	36.6	54.04	10.436	12.45	109.1	44.78	8.74	72.62
Korba	41.5	33.2	25.7	45.1	16.83	8.446	4.02	7.3	39.53	12.46	74.69
Janjgir Cham	44	36.8	21.7	39.9	23.32	9.344	6.11	7.7	35.82	22.38	136.04
Raigarh	40.8	39.2		41.6	17.79	9.156					
Mahasamud	40.6	43.7	19.8	49.5	32.68	9.044	20.89	10.3	53.68	32.09	142.36
Raipur	35	38.3		50.9	22.14	9.141				22.87	114.89
Dhamtari	29.1	34.2	27	55.2	56.49	9.406				31.02	110.04
Durg	28.2	34.3	21.2	49.1		8.939				22.66	148.36
Rajnandgaor	31.7	48.8		43.7	10.65	8.009	2.26	9.7	26.63	13.94	142.88
Bilaspur	39.4	34.1	26.8	39.1	21.22	8.578				29.31	136.1
Kabeerdham	42.2	40.4	17.6	34.9	0.85	10.306	7.18	59.3	35.39	17.35	158.67
Uttar Bastar	38.1	36.3	30.9	67.5	71.82	9.339	11.15	21.4	48.89	29.15	137.41
Bastar	51.4	41.6	33.9	67.6	77.5	9.306	12.04	4.6	49.92	28.18	131.77
Narayanpur	50.4	49	30.5	58.9	69.06						
Dakshin Bast	57	44.2	32.3	74.5	92.79	9.114					
Bijapur	65.9	48.2	26	68.7	93						

Drivers of under nutrition in the state include poor diet and nutrient intake, sub-optimal maternal, infant and young child feeding and caring practices. The food consumption patterns of the state show that consumption of all the food groups especially of fruits, dairy and protein foods are much less than the desirable intake (see figure below). In several districts of these northern and southern regions consumption of particular food groups is even lower. Infant feeding practices. Despite improvements in infant and young child feeding and caring practices from 2006 to 2016, most of these immediate determinants of nutrition, these remain sub-optimal. For example, early initiation of breastfeeding having nearly doubled (from 24.6 percent to 47.1 percent) are low; timely introduction of foods for children between 6 and 8 months of age stands at 53.8 percent; and less than 11 percent of children (between 6 and 23 months of age) received an adequate diet. Disease burden in the last ten years portrays a mixed picture. Diarrhea prevalence increased from 5.2 percent to 9.1 percent while acute respiratory infection (ARI) reduced to half (from 4.4 percent to 2.2 percent).

Agriculture can contribute to improving nutrition and there is strong potential for CHIRAAG to exploit the synergies. Agriculture can contribute to nutrition through several pathways. These include: (1) agriculture as a source of food, (2) agriculture as a source of income (for food and other pro-nutrition goods and services), (3) agricultural policy and food prices, and with specific regard to women in agriculture (4) empowerment, (5) child care and feeding, and (6) maternal nutrition. Nutrition-sensitive agriculture strategies attentive to these pathways during design and implementation, as well as monitoring and evaluation can support improvements in nutrition outcomes.

In a bid to improve the nutritional status among the state the government has been launching various initiatives such as “Vazan Tyohar” (VT) (Weight Festival) conducted by the state to collect anthropometric data of the individual child under the age of 5 years on annual basis. The scheme to provide protein-rich food in tribal areas is in line with multiple and broad strategies long advocated by

69 SECC data, World Bank

public health researchers to combat malnutrition. Such strategies also call for addressing high levels of anaemia among women. Haat Bazaar is another initiative — a plan to provide health services through special points across “the nook and corner” of the state — to yield major health dividends. Along with health services, the public would also receive information and education to boost health awareness at these haat bazaars.

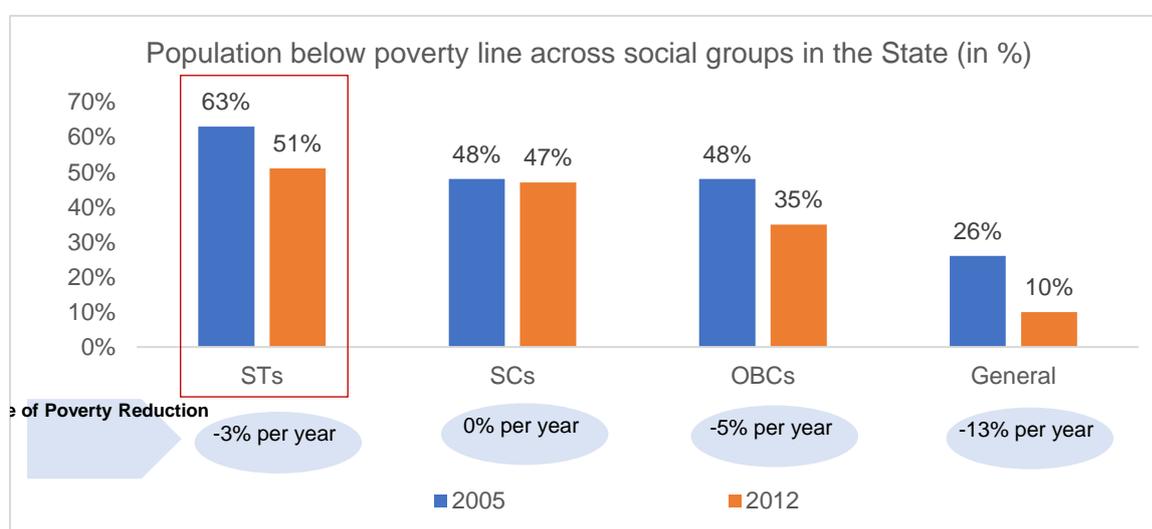
1.5. Social Inclusion and Poverty Alleviation Initiatives in CG

1.5.1. Background

More than a fifth of the population in every district in the state lives in extreme poverty, as per estimates by the State Planning Commission.⁷⁰ Chhattisgarh has a poverty headcount of 104.1 lakh and 40% of its population lives below the poverty line.⁷¹ Durg, Raipur, Korba, and Bilaspur are the leading industrial districts in the state. Yet, in Korba, more than 40% of the population lives below the poverty line. Furthermore, there exists uneven progress across social groups in Chhattisgarh. Scheduled Tribes and Scheduled Castes, in particular, have very high poverty levels. In addition, there are wide differences in schooling and access to salaried jobs across social groups. Apart from households that belong to the General category, there is high open defecation and poor access to drinking water for most households in the state.⁷²

The below table and graph depict the social group classification in the state, the percentage of population below the poverty line across selected districts and across the social groups.⁷³

Commodity	Households by Social Group, 2012 (%)	
	Chhattisgarh	All India
Scheduled Tribe	34	9
Scheduled Caste	16	19
Other Backward Classes	42	43
General	8	29

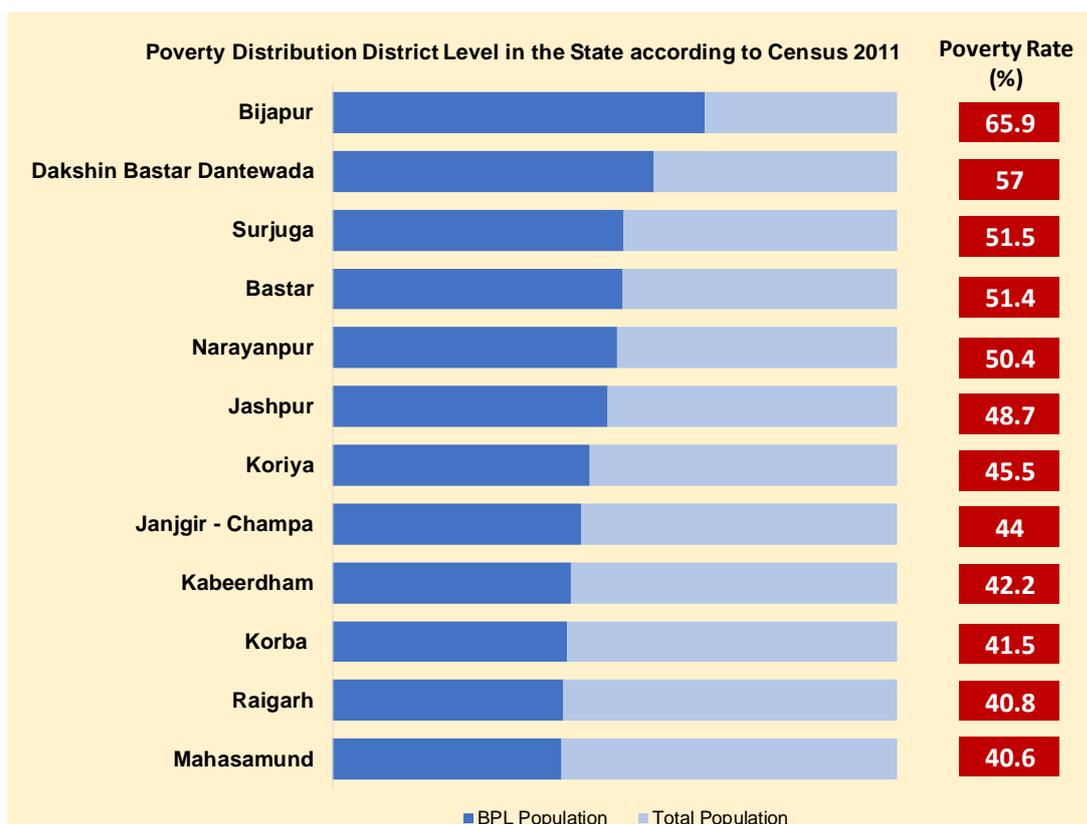


⁷⁰ Approach to 12th Five Year Plan 2012-2017, Inclusion through Human Development, State Planning Commission, Government of Chhattisgarh

⁷¹ Publications, Reserve Bank of India

⁷² “Chhattisgarh Social Inclusion”, World Bank, May 2016

⁷³ “Chhattisgarh Social Inclusion”, World Bank, May 2016



The high rate of poverty follows the huge disparity in the education attainments across social groups in the state, further leading to a stark contrast in the type of job across these groups, thereby leading to the eventual continuation of the vicious circle of poverty. The State has been attempting to address this disparity by placing a priority on the development of sectors with a high concentration of poverty like small-scale agriculture, forest-based livelihoods and skill-development of those engaged in the unorganized sector. Efforts will now be required for providing them greater access to resources and benefits.

1.5.2. Some of the Key initiatives towards Social Inclusion and Poverty Alleviation

1.5.2.1. *Narwa, Garuwa, Ghurwa, and Baadi (NGGB)*

The mission NGGB, also called 'Suraaji Gaon Yojana' (or well-governed village), is the state government's flagship scheme purposed to achieve the four objectives through an integrated approach to the primary sector with the best use of native resources along with the benefits of government's modern schemes in agriculture, water resources, energy, forest, and rural development. In 97 gram-panchayats of Raipur district Gauthan (cow-sheds) are being developed rapidly. Ten gram-panchayats are being developed as a model center. The cow-shed will act as a day-care for cattle which would be managed by women self-help groups.⁷⁴

Narwa (rivulets and streams) focuses on low-cost water conservation structures such as check dams, gully controls, underground dykes at strategic locations on water streams to ensure harvesting surface water and recharge of the subsoil as well as groundwater. National watershed mission and MGNREGA will jointly execute the program. The direct result will be an increase in arable area with a double crop. This is most needed as only 1.8 million hectares are under Rabi in the state – one-third of Khariff, in spite of enviable rainfall and a vast web of rivulets and streams Chhattisgarh is blessed with. Secondly, as 69% of irrigation is dependent on groundwater, the absence of surface water conservation can lead to the fast depletion of the precious resource. Hence, Narwa, a scientific initiative. Besides, it's

⁷⁴ "Narwa Garuwa Ghurwa aur Badi' taking shape", The Daily Pioneer News, May 2019

environmental-friendly with zero displacements of either flora or fauna. Moreover, it benefits the humans and wildlife alike in a state that has half of its topography covered with forests and nearly 34% of people – the Scheduled Tribes, making forests their home.

Garuwa (livestock) program is for protection and improvement of livestock, especially milch cattle through the provision of cattle sheds (Gothan) in each village. Managed by gram sabha, they would function as 'Daycare centers' equipped with fodder, water, and AI facilities. Apart from protection to crops from animal grazing – a perpetual menace across the country – bio-fertilizer through manure and energy from Gobar gas will be accrued benefits to villagers. Cultivation of fodder in earmarked wastelands is also part of Garuwa. Village Panchayats will accomplish the task with the help of Veterinary and Forest Departments, and MGNREGA.

Ghurwa (compost) is designed to encourage villagers to produce bio-fertilizer with the help of various schemes under agriculture and horticulture. In today's expensive chemical driven farming Ghurwa is seen as an inexpensive traditional alternative that can pave the way for increased organic farming. The idea is fertile because hitherto subsidy policies, biased in favor of nutrients alone, have led to a rise in prices of potassium and phosphate, and consequently, a decline in their use has caused an imbalance in soil health. Encouraging the use of bio-fertilizers, vermin compost, and native rural compost is essential in order to restore soil fertility.

Baadi is to encourage the cultivation of fruits and vegetables in the backyard of village homes not only as a source of additional income for villagers but also as handy nutritional supplements. Departments of Horticulture, Land administration will help in developing the backyard kitchen gardens by providing seedlings, fertilizers, and energized community dug wells.

The project involves active convergence of different departments like Agriculture, WRD, Forest, Panchayat & Rural Development, CREDA, Horticulture, Animal Husbandry among others. Further, the program plans to utilize funds from different schemes like MGNREGA, PMKSY, Bio-gas schemes, CREDA, DMF, keeping the focus on boosting the farmers' welfare. Currently, 9983.37 acres of land has been brought under Gothan development and 11.40 Lakh number of animals will use these facilities and the total amount of money sanctioned for this activity is INR 33,319.14 Lakhs.⁷⁵

1.5.2.2. *PESA*

The Provisions of the Panchayat (Extension to the Scheduled Areas) Act, 1996” popularly known as PESA Act, extends Part IX of the Constitution with certain modifications and exceptions to the Fifth Schedule Areas notified in ten States viz. Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, and Telangana. These Schedule areas in ten States extend in 108 districts (45 fully and 63 partly covered). PESA Act mainly aims to protect the tribal population from exploitation by making Gram Sabhas and Gram Panchayat centers of self-governance and has laid special thrust to empower Gram Sabha which has not been conferred by any other Act in any State. Though the State Government of Chhattisgarh has made substantial progress in respect of compliance of concerned State subject laws with the PESA Act, it has not yet framed PESA Rules. Effective implementation of PESA Act would lead to the following benefits to the tribal population:

- Institutionalize self-governance and people’s participation in decision making.
- Reduce alienation in tribal areas as they will have control over the utilization of public resources in the village through Gram Sabha.
- Reduce poverty and out-migration among the tribal population as they will have control over natural resources such as minor water bodies, minor forest produce, minor minerals, etc. Control over and management of these resources will improve their livelihoods and incomes.

⁷⁵ “Department of Agriculture Development and Farmer Welfare and Bio-Technology Government of Chhattisgarh” April 2019

- Better implementation of developmental schemes and programs due to enhanced people's participation in planning and identification of beneficiaries.
- Promotion of cultural heritage through preservation of traditions, customs and cultural identity of tribal population.

The MoPR being the nodal Ministry, strives to ensure implementation of the PESA Act primarily through advocacy and financial support. The States are being regularly persuaded for effective implementation of the PESA Act. Some of the initiatives taken by MoPR to strengthen the implementation of PESA Act are as under:

1. **Harmonization Committee:** A Committee on Harmonization of Central Laws with PESA Act, set up under the chairmanship of the Union Law Secretary, has made recommendations to harmonize certain Central laws with the provisions of PESA. Ministry of Coal and Ministry of Tribal Affairs have agreed to take actions to amend their relevant laws.
2. **State Level Workshops in 2014-15:** The Ministry organized One-Day State-level Workshops in eight PESA States during 2014-15 to give a fillip to the implementation of PESA and improve the level of awareness on the subject among the Departments of the State Governments and the representatives of PRIs.
3. **National Workshop:** A National Workshop was organized at New Delhi on February 4-5, 2016 to review the progress of implementation of PESA in States, issues, and challenges being faced and the way forward
4. **National Meeting of Tribal Women Presidents of Gram Panchayats:** A National Meeting of Tribal Women Presidents of Gram Panchayats of Fifth Schedule Areas was held at Andhra Pradesh on April 19, 2016, on "the Role of Women Gram Panchayat Presidents in the Development of the Fifth Schedule Areas". The meeting was attended by the Union and the State Ministers including their officials besides 850 Tribal Women Gram Panchayat Presidents from the Fifth Schedule Areas.
5. **Separate guidelines of GPDP:** A separate guidelines for participatory Gram Panchayat Development Plan (GPDP) for local development in PESA Areas, circulated to PESA States.

It has been almost 22 years since the PESA law has been passed, however, the implementation has not been effective so far. This calls for designing a regressive implementation plan aimed at promoting social inclusion so that panchayats of Adivasi majority district would work like the autonomous district councils of the North East.

1.5.2.3. *Aspirational Districts*

Aspirational Districts program was launched by Prime Minister Narendra Modi in 2018 under its think tank NITI Aayog. The program aims at transforming selected districts that have shown relatively less progress in key development sectors. The government had identified the Human Development Index and inter-state and inter-district disparities as major hindrances in development. Aspirational Districts program aims at holistic development of the districts. It encompasses health and nutrition, education, agriculture, and water resources, financial inclusion and skill development, and providing basic infrastructure — access to roads, potable water, electricity in rural households and individual household toilets. There are 10 districts of Chhattisgarh included in the list of 115 Aspirational Districts identified by NITI Aayog and they include Korba, Bastar, Mahasamund, Bijapur, Dantewada, Kanker, Kondagaon, Narayanpur, Rajnandgaon, and Sukma.

At an overall level, an average improvement of about 27% has been made by the aspirational districts of the state.⁷⁶ So far, NITI Aayog has released two reports on aspirational districts ranking; one was released in June 2018, and the second in October 2018. Chhattisgarh's Kondagaon district topped

⁷⁶ Transforming Aspirational Districts in India, A Program for New India 2022, NITI Aayog

Aspirational District program for May 2019, enhancing living standards and improving upon ease of living for its inhabitants, as per the delta ranking by the NITI Aayog.

Based on these two, the overall ranking of Chhattisgarh can be compared as depicted in the table below:⁷⁷

Districts	First Delta Ranking as of June 2018	Districts	Second Delta Ranking as of October 2018
Bijapur	6	Bijapur	40
Korba	9	Korba	45
Dantewada	18	Dantewada	12
Kondagoan	35	Kondagoan	38
Rajnandgaon	37	Rajnandgaon	-
Mahasamund	45	Mahasamund	23
Narayanpur	61	Narayanpur	63
Bastar	68	Bastar	94
Kanker	77	Kanker	28
Sukma	100	Sukma	98

Left-Wing Extremism Division (LWE)

LWE division was created in October 2006 in the Ministry, to effectively address the Left-Wing Extremist insurgency in a holistic manner. The LWE Division implements security related schemes aimed at capacity building in the LWE affected States. The Division also monitors the LWE situation and countermeasures being taken by the affected States. The LWE Division coordinates the implementation of various development schemes of the Ministries/Departments of Govt. of India in LWE affected States.

Central Government approved the National Policy and Action Plan in 2015 which has a multi-pronged approach envisaging security related interventions, developmental measures, ensuring rights and entitlements of the local communities, etc. Security-related measures include assistance to LWE affected States by providing CAPF Battalions, helicopters, UAVs, construction of fortified police stations, funds for modernization of State Police forces, arms, and equipment, training assistance, sharing of intelligence, etc. The success of the strategy is evident in reducing security vacuum and increasing the reach of governance to interior areas.

Several other significant initiatives have been taken on the developmental front in the LWE affected States, including Chhattisgarh, for road connectivity, skill development, installation of mobile towers, financial inclusion and education. In 2017-18, a new Scheme, namely 'Special Central Assistance for the most LWE affected districts' has been launched for filling up the critical gaps in Public Infrastructure and Services with an outlay of Rs. 3000 crores. Under 'Special Central Assistance for the most LWE affected districts' eight districts of Chhattisgarh are included and an amount of Rs. 200 crores have been released to Chhattisgarh for these districts.

1.5.2.4. *Pota Cabins: Residential Schools for Children in LWE-affected areas of Chhattisgarh*⁷⁸

The status of education in the Dantewada district of Chhattisgarh was abysmal. As per a 2005 report, the literacy rate of the state stood at 30.2% against the state average of 64.7%. The development deficit in the Dakshin Bastar area, which includes Dantewada district, has been largely attributed to the remoteness of villages, lack of proper infrastructures such as roads and bridges, and weak penetration of communication technology. The situation in this region has worsened due to Left-Wing Extremism (LWE) and violence. According to a study published in 2014, nearly 86 primary and residential schools

⁷⁷ "Aspirational District Program and second Delta Ranking and Insights from Household Survey", NITI Aayog, October 2018

⁷⁸ "Pota Cabins: Residential schools for children in LWE-affected areas of Chhattisgarh", NITI Government

have been destroyed. In January 2011, the number of out-of-school children in the age group of 6-14 years in the Dantewada district was 50.3%, and 20-30% of schools were reported defunct.

Against this backdrop, Pota Cabins was launched as an innovative educational initiative for building schools with impermanent materials like bamboo and plywood in Chhattisgarh. To address the destruction of concrete structures, the administration decided to build schools made of prefabricated materials so that schools cannot be used as hideouts or armed camps. Further, it would also draw children away from the remote and interior areas of villages that are more prone to LWE violence.

The main objective of the initiative includes enrolment and continuous retention of out-of-school children by bringing them to mainstream society through formal education. It also aims at inculcating a scientific temper in children to prepare them not only for employment opportunities but also for qualitative changes through the provision of basic amenities of healthcare, food and proper accommodation along with an environment that encourages innovation and entrepreneurship. It seeks to promote vocational skills and build capacities for self-employment among students.

Impact Created⁷⁹

The initiative has helped reduce the number of out-of-school children and improve enrolment and retention of children since its introduction in 2011. The number of out-of-school children in the 6-14 years age group reduced from 21,816 to 5,780 as the number of Pota Cabins rose from 17 to 43 within a year of the initiative. These residential schools help ensure continuity of education from primary to middle-class levels in Left Wing Extremism affected villages of Dantewada district, by providing children and their families a safe zone where they can continue their education in an environment free of fear and instability.

Key Learnings from this initiative

- Financial constraints have been one of the major roadblocks in maintaining adequate qualified teaching staff. While this is being temporarily filled in by the subject instructors, it needs to be tackled more comprehensively for making Pota Cabin education part of the mainstream
- Another factor to be considered while replicating the Pota Cabin initiative is to identify fringe locations on the border of LWE dominated areas in such a manner that children who have dropped out, even in interior areas, can be brought back to schools.
- The temporary structure of portable cabins should be used to ensure that schools are used only as places of education, and not for any other unintended purpose, thus maintaining the confidence of all stakeholders.

1.5.2.5. *Bihan*

The GoI established the National Rural Livelihoods Mission (NRLM) to implement the new strategy of poverty alleviation woven around community-based institutions. The Mission's primary objective is to reduce poverty by promoting diversified and gainful self-employment and wage employment opportunities for a sustainable increase in incomes. The Mission would work in conjunction with the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) of MoRD and would primarily focus on creating self-employment and wage/job employment opportunities for the rural poor who would enable them to cross the threshold of poverty and become productive agents.

Further to this backdrop, the Chhattisgarh Aajeevika Samvardhan Samiti (Bihan), designated as State Rural Livelihoods Mission (SRLM) has rolled out NRLM in Chhattisgarh for coming 10 years. The BIHAN program has entered all the 146 blocks and a dedicated team at Block, District & State level has been set up to drive the mission's agenda. Social Mobilization and institution building, financial inclusion, livelihood promotion through sustainable agriculture, Start-up Village Entrepreneurship Program (SVEP) are the fundamental pillars of the project.

⁷⁹ "Pota Cabins: Residential schools for children in LWE-affected areas of Chhattisgarh" NITI Government

The broad objectives of the Bihan Mission in Chhattisgarh are:

- Ensuring that at least one member from each identified poor rural household, preferably a woman, is brought under the SHG network in a time-bound manner, benefiting the poor in several ways under social and economic inclusion.
- Mobilizing and connecting the SHGs to the Village Organisations (VOs), Community Level Federation (CLF) and Block Level Federation (BLF)
- Providing technical education, extending financial support, conducting training and capacity building and connecting them with markets for ensuring sustained livelihoods for the women members in the group.
- Facilitating a minimum increment of the annual income of the targeted HHs by 1 lakh through livelihood generation and support activities under the initiative

As of September 2019, the following has been the status and the progress update on the CGSRLM initiative

Status of CGSRLM as on 30 Sept. 2019		
SNo.	Key Performance Indicators	Cummulative Progress
1	Total District Entered	27
2	Total Block Entered	146
3	Total GP Entered	7044
4	Total Village Entered	11370
5	Total number of SHGs under NRLM fold	148531
6	Total Households mobilized into all SHGs	1669811
7	Number of all SHGs provided RF	68944
8	Number of all SHGs provided CIF	27265
9	Amount of CIF provided to SHGs (in Rs. Lakh)	17296.08
10	Total VOs	7963
11	Total CLFs	352
12	Number of VOs provided CIF	844
13	Amount of CIF provided to VOs	4779.95
14	Number of CLFs provided CIF	64
15	Amount of CIF provided to CLFs	2557.75

2. Project Description, Scope and Phasing in strategy

2.1. Project Introduction

Chhattisgarh Inclusive Rural Accelerated Agriculture Growth Project (CHIRAAG) is a rural transformative project that is premised on the development and optimum utilization of traditional village resources of production through:

- Rivulet regeneration and conservation (Narwa);
- Livestock management and increase production (Garwa);
- Bio-composting (Ghuruwa);
- Nutritional and income-generating support activities through backyard fruits and vegetable (Badi);

to transform the village level economy from subsistence level to semi-subsistence farming and then to commercial production.

The project envisions to improve the state's agricultural and forest competitiveness in terms of increased production, productivity, with an enhanced focus to water management, livestock development, farm waste management, post-harvest management, storage, marketability and enterprise development for the creation of off-farm employment opportunities. The project fundamentally targets to increase rural household income generation and nutrition intake, with special focus on the tribal population that accounts for 33% of the total population in the state - through the promotion of backyard farming (Badi), sustainable agro-value chain creation, entrepreneurship development amongst rural youth and women and employment generation. It will attempt to build on the existing network of community institutions promoted by Chhattisgarh SRLM and support them in accelerated and inclusive rural transformation.

2.2. Project Development Objective (PDO)

The PDO is to **improve income opportunities** and the **availability of nutritious foods** in the targeted households of the **tribal dominated areas in Chhattisgarh**. The sub-objective to ultimately achieve the PDO is to increase the productivity, profitability and market access of small farmers/ marginal HHS/ NFTP collectors by promoting and capitalizing on village resources Narwa (rivulets), Garuwa (livestock), Ghuruwa (farm waste), and Badi (backyard farming) / in the selected tribal-dominated locations of Chhattisgarh. Beneficiary communities and households, with a special focus on women as change agents, will be targeted to plan and consume diverse, locally available and nutritious foods in their households. Support will be provided to women and adolescent girls in the adoption of positive nutrition and related practices, including their engagement in improved and diversified homestead gardens supplying year-round nutritive food, thereby leading to improved nutrition outcomes for women and children.

The two main fundamental pillars of the project are Income and Nutrition. The income for the target farmers/producers is expected to increase through the combination of:

- Diversification and sustainable intensification of production systems
 - Developing integrated farming systems – agriculture-horticulture-agroforestry-fishery-livestock, other allied sub-sectors like floriculture, etc.), which is more aligned with market demand;
- Productivity increase through infusing modern technology and improving resource infrastructure (water management irrigation/soil health etc.); Breed improvement through AI; Seed Development to achieve self-sufficiency in seed at the block level
- Value addition through post-harvest measures, primary, secondary and tertiary processing, establishment of milk units; and

- Better price terms through improved access to local-national-export markets.

On the other hand, Nutrition for the targeted population is expected to be increased through a combination of the following:

- Integrated Natural Resource Planning of the HHs to ensure that each of the targeted HHs should practice one or the other activities: Home-stead food production (for instance pulse and millet plantation, backyard poultry in rabbits, quails, pigeons, ducks, turkey), Nutrition Kitchen Garden (Badi), indigenous nutri-rich fishery varieties and such other activities;
- Facilitating an increase in the production of nutrient-dense crops and small-scale livestock (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and biofortified crops); dairy development through development of milk routes
- Improve processing, storage and preservation to retain nutritional value, shelf-life, and food safety, to reduce the seasonality of food insecurity and post-harvest losses, and to make healthy foods convenient to prepare for domestic consumption;
- Promoting SHGs to develop local nutritionally rich snacks for distribution to the Angadwadis Centers and Schools;
- Incorporate nutrition promotion and education around food and sustainable food systems that build on existing local knowledge, attitudes and practices (Developing IEC material and BCC toolkit to create sustainable demand for the nutritionally rich food).

Overall, the project is expected to directly impact 1.8lakh producer households.. The project is also expected to impact value chain actors viz., traders, processors, warehouse operators, marketers etc. The development of agriculture and allied sectors will transform the State's rural economy and quality of life and enhance State's contribution to national food security.

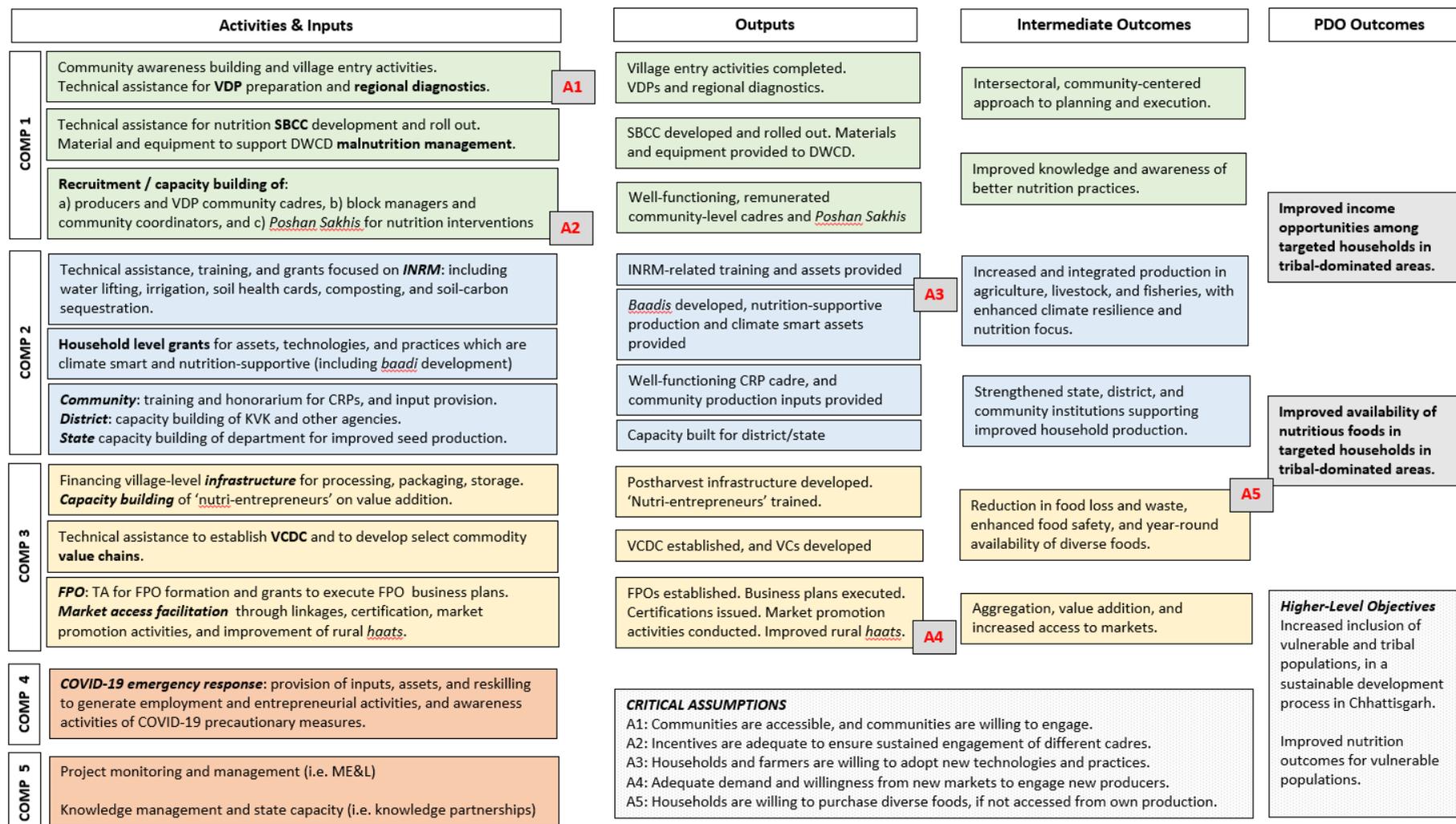
2.3. Key Project Indicators

The PDO level indicators are as follows:

- Beneficiary households with intensified and diversified sources of income (Number, disaggregated by social category in percentage);
- Beneficiary households with increased number of food groups available at the household (Number, disaggregated by social category in percentage);
- Farming households reached with agriculture assets/services (CRI) (Number).

The table for Result Framework and Intermediate Results Indicators is provided in section 7.6.4.3.

Results Chain



2.4. Project Scope and Strategy

The CHIRAAG project will build on Chhattisgarh's comparative advantages and develop strategies to spur the growth of rural economy through the development of resilient nutrition-production system underpinned by the concept of Integrated Farming System (IFS). This will resultantly lead to the improved farm (agriculture and horticulture) and non-farm (livestock and fisheries) output leading to enhanced availability of nutritious food, surplus for value chain development and product marketability to improve beneficiary's income. This will have a catalytic transformational impact on rural and overall economy of the State. The following heads pan out the key contours of CHIRAAG aimed at achieving the PDO through an inclusive strategy.

1. **Participatory village planning:** Household, village (community) and Gram Panchayat (Gauthan) level investments will be identified and prioritized through a participatory village planning process using participatory rural appraisal and planning exercises. This will include social resource mapping, transect walks, focus group discussions, village meetings, as well as small-scale village entry activities such as information, education and communication (IEC) on project objectives, approaches, new ways to promote improved CSA technologies and practices for accelerated adoption, intended outcomes and engagement expectations. This process will result in preparation of village development plans (VDPs) that will plan out the use of natural resources, rural production and livelihood systems (farm and non-farm), food and nutrition systems, and identify the need for access to credit, infrastructure, extension and advisory services. VDPs will include investments and activities at three levels:
 - a. Gauthan level, to provide commonly used services such as small check dams, community seed banks, shade net nurseries, community machinery banks, agroforestry etc.;
 - b. Village level like pond rejuvenation, irrigation infrastructure, community baadi and orchards, small processing equipment; and
 - c. Individual household level.
2. **Community Institution building and institution strengthening:** The project aims at supporting the formation and/or capacity building of key community institutions to enable participation in CHIRAAG planning and implementation processes and to leverage project investments for community and household benefits.
 - a. **Formation of Livelihood Groups (LGs):**At the village level, a multi-commodity LGs will be formed as the key community institution to anchor project processes, interventions and investments in the targeted villages. All interested households within a village can become LG members based on their scaling up and or livelihood diversification interests. Existing community organizations, if any, such as Producer Groups, Farmer Interest Groups etc. will be included within these LGs.
 - b. **Strengthening of Gauthan Committee (GC) and CHIRAAG Resource Committee (CRC):**At the GP level, the project will strengthen and work with the government notified GC which will work with the CRC. The CRCs will be an informal body comprising 9-15 representatives drawn from community organizations from the villages in the catchment of an existing Gauthan, such as LG, Joint Forest Management Committees (JFMCs), SHGs, village federations and CBOs in the village.

The LGs, GCs and CRC will be strengthened to promote social, economic and geographic inclusion throughout the processes of planning and implementation as a means of community empowerment.

3. **Integrated Farming Systems (IFS) Approach:** To achieve the PDO, CHIRAAG will follow an IFS approach that would encapsulate all the key production systems as well as the available natural resources in the project geography. The project envisages that the production systems at each HH level would be fundamentally based on the platform of an IFS model integrating agriculture horticulture, livestock, and fisheries with a final goal of meeting the nutrition and income objectives. The IFS model at the HH level will be set up based on the outcome of the CHIRAAG Village Development Plans that will diagnose, assess, and map the resources and asset base of each HHS

as well as considering the beneficiary willingness, customized plans will be drafted. Also, nutrition and climate resilience will form the key pillars of the IFS model underpinned by extension services, program delivery, processing, nutrition extension and BCC, etc.

- 4. Efficient augmentation of the resource base:** The project will systematically plan and put measures to sustainably increase the potential and effective utilization of natural resources like water, soil, livestock, farm waste etc. for economic activities. Hence the project will support development, optimum utilization and sustainable management of three key natural resources (water, soil and biodiversity) using a blend of traditional local knowledge, community-based management systems and modern technologies under the umbrella of Integrated Natural Resource Management (INRM). The local institutes and departments will be supported to adequately plan and develop the natural resource base for sustainable agribusiness growth such as through exploring watershed-based planning for water harvesting, minor irrigation development, agroforestry development etc. Investments will be made to bring in modern scientific knowledge and innovations to sustainably improve and develop the resource base. At the same time, the focus would be on harnessing the traditional and indigenous knowledge base of the population towards improving natural resource management.
- 5. Focus on key potential growth sectors:** The project will focus on key sectors that demonstrate strong potential for income generation and growth in the rural economy. Investments will be made in agriculture and allied sectors after district diagnostics, value chain analyses and opportunity assessment studies. The following sectors and sub-sectors are likely to get invested as per the state's comparative advantages:
 - Seed Production: to make the state self-sufficient in production of all seed/planting materials – of food grain, pulses, cereals, oil seeds, fruits and vegetables. Especially focusing on newly released, high nutrient varieties. This will also include fodder seeds/material and agro-forestry species like bamboo, olive, oil palm, etc. Enhanced focus would be given to local species of fruits and vegetables, like the numerous leafy vegetables and perennial plants
 - Breed improvement of cattle for enhanced milk production
 - Integrated farming for higher returns – mixed cropping, agro-horticulture, sericulture
 - Mechanization of agriculture
 - Enhancing pulses and oilseed production for self-sufficiency, with locally suitable varieties
 - Increased egg, meat fish production
 - Establishing processing facilities for agriculture produce, milk, meat etc. – at least 4 small and one medium sized in each block
 - Linkage to markets and setting up for supply chain
 - Packaging, certification, accreditation support
 - Increasing the use of natural composting/ natural manures/herbicides and pesticides
 - Promote awareness and practice of organic cultivation
- 6. Nutrition:** Under the theme of nutrition, the project envisions to focus on the following:
 - a. Increase knowledge and influence the adoption of recommended maternal infant and young child feeding, and water, sanitation and hygiene (WASH) behaviors and practices
 - b. Improve intake of nutria-rich crops and improved diet through BCC
 - c. Provide special focus on nutrition intake of adolescent girls, lactating women, parents of undernourished children
 - d. Promote indigenous nutria-rich recipe would revive consumption practices and improve nutrition

To achieve the stated objective the project will have interventions such as development of cadre for nutrition (Poshan Sakhis), development of Nutrition Field Schools for dissemination of information, awareness building and provision of demonstration for improving nutrition practices, developing BCC strategy developing and promoting nutri-preneurs who can take up production of nutrition bars, dry

snacks made of millets, multi-grain flours, etc. and convergence with the Women and Child Development (WCD) department among other initiatives.

- 7. Behavioural Change Communication (BCC):** The BCC component has been identified as one of the critical themes for driving demand for nutrition and adoption of the nutri-driven production practices. BCC under CHIRAAG will combine elements of interpersonal communication, social change and community mobilization activities, mass media, and advocacy to support and encourage the target beneficiaries' communities, and institutions, to adopt and maintain nutri-rich consumption patterns. This would involve development of farmers' nutrition school and development of nutrition cadre such as Poshan Sakhi who will initiate, drive and manage the nutrition related practices and interventions and development of nutri-preneurs who would take up the production of nutrition bars, dry snacks made of millets and other nutritious cereals and crops.
- 8. End to end value chain interventions:** The project will make investments at every point of value chains of selected products/services. Experience has revealed that piecemeal approaches have had limited impact on sustainable economic development. For instance, supply-side interventions that are not accompanied by measures to improve market relevance often results in a production system that creates products that are at odds with the market demand, ultimately resulting in temporary and unsustainable improvements in livelihoods. Similarly, market-side interventions that help beneficiaries to access markets are often not sustainable if the corresponding production capacities are not strengthened. The project will, therefore, adopt a holistic model of intervention that strengthens every point of the product/service value chain. Special provisions for perishable commodities need to be included. This would mean exploring the various preservation techniques at two nodal points; for products that are meant to be domestically consumed by the HHs and for those products that meant for the commercial scale.
- 9. Cluster approach:** The project will adopt a commodity-based cluster approach to develop inclusive agricultural value chains. Producer organizations as agro-enterprises will be formed in the identified areas, depending upon the possibilities of produce aggregation, value addition and marketing. The areas with strong community institutions and local institutional governance (strong village panchayat leadership), will be purposively selected for producer group/producer collective's formation. The objective is to leverage the existing social capital for aggregation and exploring opportunities for forwarding linkages and value addition.
- 10. Capacity Development through training and demonstration:** CHIRAAG envisions to equip the project staff (for selected trainings) as well as the beneficiaries with relevant training and capacity building across institution building and strengthening, Integrated Natural Resource Management (INRM), IFS, nutrition, horticulture, livestock, fisheries, integrated pest management (IPM), soil health, organic agriculture, and climate smart agriculture (CSA) so that the interventions can be scaled up as per the project strategy plan.
 - a. The capacity building and training will be provided on a Training of Trainers (ToT) model and leveraging the FAO's Farmer Field School approach, of IFS Schools (IFSS).
 - b. The IFSS will include support to lead farmers, on-farm technology demonstrations (all sectors), exposure visits and measures for farmer to farmer extension.
 - c. Training would be delivered in multiple layers of the community architecture such as the Community Resource Persons would be trained by the Block and District level officers who will ultimately train the beneficiaries at the grassroot level for undertaking the planned activities.
 - d. Further, to build management capacity of women members in executive committees of the LGs and CRCs, the hired TSA in collaboration with Krishi Vegyan Kendra (KVKs), will develop training modules to build capacity of women representatives in resource management, procurement, market access, actions to scale up Climate Smart Agriculture (CSA) adoption to reduce non CO₂, GHG emissions and other required technical skills.
 - e. The LGs and the GCs will receive training and financial and handholding support to function as multicommodity producer groups and providers of technical, aggregation and value

addition services through community cadre who will be identified, trained and supported by the TSA and KVKs.

- f. The TSA hired for capacity building will leverage information and communications technology (ICT) and conventional communication mechanisms for capacity development, peer-to-peer learning, engagement tracking and other institutional aspects in community institutions.

- 11. Convergence and partnerships:** The project will complement, and leverage activities and investments made under existing state government and central government schemes such as the Blue Revolution Scheme, RKVY Scheme and such others (covering all the related sectors). An attempt will be made to attract further investments from Corporate Social Responsibility (CSR), foundations and other national/international agencies which sync well with the project objectives and intended outcomes. The project will build strategic partnerships with the private sector and other organizations such as academic institutions, research organizations, technical institutions, financial institutions and civil society. The project will engage with these institutions to bring in knowledge and drive innovations. An attempt will be made to promote Public-Private-Community Partnership (PPCP) ecosystem that can promote entrepreneurial growth at the local level. State and national agriculture universities and colleges, relevant line departments, private agencies, autonomous organizations under State/Central governments, Government Institutes/Research Bodies, Panchayats, and Village Organizations (VOs) would be the onboarded
- 12. Social inclusion and geographical targeting with special focus on tribal population:** The project will include the tribal population who is one of the most vulnerable and socially neglected sections of the society. The project will use geographical targeting for inclusion combined with pro poor investments to effectively reach poor and vulnerable households, especially tribal communities. Tribal women face intersectionality of barriers and have negligible individual and collective agency to participate effectively in decision-making processes. Through increased awareness and capacity building initiatives, the project will include more women, in the LGs and facilitate active role of women members in the governance and management of LGs as well as in the planning process while the interventions are being designed.
- 13. COVID-19 Economic Recovery Response:** Aspart of COVID-19 Economic Recovery Response component the project plans to prioritize and expediate the implementation of the project activities in 300 villages out of the total 1,000 target villages. The criteria for selection of these 300 villages would be based on the study conducted by the Labour Department to identify the total migrants returning to Chhattisgarh and mapping the ones belonging to the areas, prioritized within the project. The technical support agency hired for conducting CHIRAAG Village Development Plans will conduct rural diagnostic study as per the project plan, followed by the rapid rural assessment in these selected 300 villages on priority for implementation of the CERC component as envisaged under the project plan.

2.5. Project Components

The project is organized into six components:

- **Component 1: Community Empowerment and Institutional Strengthening:** This component will build household and community capacity to: (a) plan, implement, and monitor development investments; (b) support and strengthen community institutions toward effective management of natural resources, and community and private assets; and (c) create diet diversity and promote positive nutrition practices at household level.
 - **Subcomponent 1.1 Participatory Village Planning and Community Institution Building:** This sub-component will support: (i) socialization of CHIRAAG among communities in project villages through village entry activities that foster social capital and rapport building; (ii) preparation of village development plans through a participatory village planning process to include climate resilient activities; and (iii) formation and/or capacity building of key community institutions to participate in CHIRAAG planning and implementation processes and leveraging of project investments for community and household benefits in adapting and adopting climate smart activities.
 - **Sub-component 1.2 Household Food Availability and Nutrition Practices:** This sub-component focusses on women's empowerment (including women's control of economic resources) that is linked closely to nutritional status and can result in decreased malnutrition⁸⁰. Beneficiary communities and households, with a special focus on women as 'change agents', will be targeted to plan and consume diverse, locally available and nutritious foods in their households. Under this, a Social and Behavior Change Communication (SBCC) program will be designed and implemented to increase knowledge and influence the adoption of recommended maternal infant and young child feeding, and water, sanitation and hygiene (WASH) behaviors and practices. The SBCC strategy will focus on adolescent girls and young women to imbibe sanitation practices and benefits of improved nutrition through interactive messaging, kitchen garden demonstrations and regular meetings/monitoring at the village level through GCs.
- **Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems:** The component has three-fold objective one to improve the nutritional intake of participating households by the cultivation of nutrition-rich crops in the homestead garden, second foster the production systems to gradually generate surplus increased incomes, and third strengthen the system to mitigate of climate change and ensure sustainable farming. For increasing the incomes, the project shall support the participating households in increasing the overall production from the natural resources and the economic assets accessible to these households. The production system would be fundamentally based on the principles of Integrated Farming System (IFS) Model which aim at optimal utilization of the inputs and by-products generated from an IFS model, so as to make the system as self-sustaining. These natural resources and economic assets include the Badi; the land available under individual and community forest rights; livestock, forest resources etc. For improving the nutritional status of the targeted community, the project would look at interventions on both the supply side and demand side so that local agricultural, food production, marketing and WASH systems are aligned with local preference for nutritive food and hygiene. To improve nutritional uptake within the existing food plate of participating communities, the project would complement demand-side interventions (e.g. community monitoring etc.) with behavioural change communication
 - **Sub-component 2.1: Community Based Natural Resource Management:** This sub-component will support development, optimum utilization and sustainable management of three key natural resources (water, soil and biodiversity) using a blend of traditional local knowledge, community-based management systems and modern technologies. Sustainable Water Management, Water management for Crop Intensification and Integrated Farming, Enhanced Soil Health, Agro-biodiversity Conservation and Use are some of the key concepts to be focused around this sub-component.
 - **Subcomponent 2.2: Integrated Food and Nutrition Supportive Agriculture:** This sub-

⁸⁰IFPRI Discussion Paper 01681, October 2017 'Nutrition-Sensitive Agriculture: What Have We Learned and Where Do We Go from Here?' by Marie T. Ruel Agnes et.al., Poverty, Health and Nutrition Division

component will focus on and finance interventions for developing Integrated Farming Systems (IFS), supporting infrastructure and district and state capacity to deliver essential inputs. IFS will not only meet the input⁸¹ requirements of various systems (crop/soil, animal, fish), but also de-risk climate shocks through broadening the production system across agriculture, horticulture, fishery and livestock.

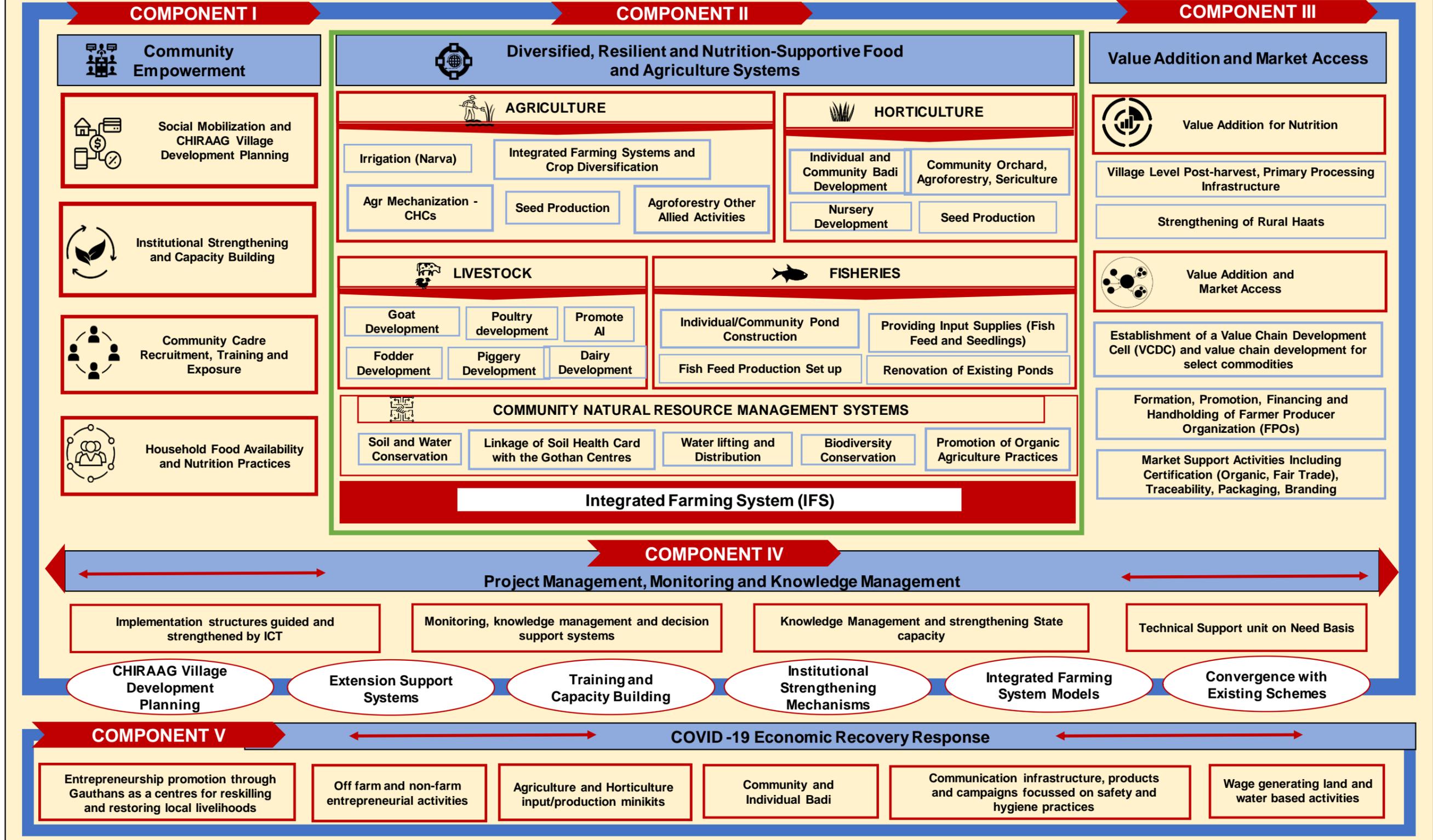
- **Component 3: Value Addition and Market Access:** The objective of this component is to diversify income sources or improved price realization through the development of suitable infrastructure, local capacities and enabling systems to facilitate value addition and market access for a select number of agro-forestry produce and other types of surplus agriculture produce. The project would invest in post-harvest management and value addition facilities such as multi-commodity collection points, small warehouses, common facility centres for value addition (e.g. processing of cereals/millet/oilseeds; processing of fruits and vegetables and other horticulture produce viz., dehydrated vegetables/fruits, deseeding of Tamarind, Chironji Decorticator, Tikhur processing; cleaning and sorting of grains, seeds etc.). Investments in post-harvest management and value addition activities would provide four-fold benefits: (i) year-round increased availability of locally-produced nutritive foods; (ii) opportunities for higher price realization by selling produce in value-added form as required by buyers; (iii) improved quality and shelf-life of the produce; (iv) promote local agri-entrepreneurship and develop rural economy.
 - **Subcomponent 3.1: Value Addition for Nutrition:** This sub-component aims to address the negative impacts of food loss or wastage and increase the availability of nutritious food at household level year-round, with excess production of nutritious foods to be available for local markets, and for the members enrolled at Integrated Child Development Services, Mid-day Meal and local schools. Therefore, this sub-component will focus on: Food Storage and Value Addition Facility and Strengthening and Leveraging Rural Markets.
 - **Subcomponent 3.2: Value Addition and Market Access:** Local value addition and access to profitable markets is expected to help realize higher returns to the small producers and create local job opportunities. This sub-component will mobilize small producers into FPOs (Producer Companies or Cooperatives as per local context and preference of the producers) at the cluster (Block/District) levels for aggregation, value addition and accessing profitable markets. Therefore, this sub-component will focus on: Support to Farmer Producer Organizations and Value Chain Development for Select Commodities
- **Component 4: COVID-19 Economic Recovery Response:** The COVID Economic Recovery Response Component aims to mitigate the food, health and income shocks and reduce vulnerability caused by the COVID pandemic, as well as promote faster economic recovery, among the communities, returnee workers and households in the project areas. The component will stabilize and restore local food supply and production as well as stabilize and secure livelihoods and income opportunities. This component will focus on Gauthans as a centres for reskilling, short term work opportunities, restoring local livelihoods through entrepreneurship; Off farm and non-farm entrepreneurial activities; wage generating land and water based activities; communication infrastructure, products and campaigns that build awareness and capacity among the project communities on safety and hygiene practices in the context of the ongoing pandemic and proposed project interventions. This component will also promote baadi for nutritional enhancement as well as community badi.
- **Component 5: Project Management, Monitoring and Knowledge** The objective of this component is to support project coordination, implementation, financial management, procurement, and environmental and social safeguards management at the State, Regional, District, Cluster and community levels as well as facilitate knowledge building, knowledge management and strengthen state's capacity. The component aims at supporting the effective implementation of the project by laying out suitable implementation structures guided and strengthened by ICT-enabled monitoring, knowledge management and decision support systems. At the administrative level CHIRAAG would establish State Project Management Unit (SPMU), deploying pool of resources staffed with the participation of Departments of Agriculture, Farmer Welfare and Biotechnology (DoAB),

⁸¹Integrated production systems use some outputs (e.g. by-products) and services of one production component as input to another within the farm unit. FAO.

Horticulture, Livestock and Fisheries. Further the project would facilitate setting-up of support units at the district, and block level. The SPMU will also establish project management teams at District and Block levels, which will implement the project activities, and have a direct reporting line to the SPMU. These units would catalyse social mobilization, build community institutions, capacities development, spearhead livelihood and value chain interventions, and promote convergence and partnerships with stakeholders. The State-level PMU shall also try to leverage knowledge partnerships with national/international agencies for enabling active participation from other key stakeholders in the project ecosystem.

- **Sub-component 5.1: Project Monitoring and Management:** Key activities under this sub-component include the following: functioning of a monitoring, evaluation and learning cell within SPMU; commissioning studies (baseline, mid-line, end-line) and reports; ICT and GIS-enabled MIS at State, District and Block levels; thematic and process monitoring studies; and learning workshops on project activities, as required.
- **Sub-component 5.2: Knowledge Management and State Capacity:** This sub-component would focus on the following:
 - The project will promote knowledge exchange between various stakeholders besides accessing up to date knowledge from local, national, and international organizations.
 - The project will strengthen State capacity through the sharing of new information and knowledge in a similar development context from other States/countries.
 - The project will support the creation of an ecosystem to capture, preserve and scale the traditional knowledge and practices of tribal communities relevant to the project scope.
 - The project will fill this gap by strengthening local institutions such as Indira Gandhi Krishi Viswa Vidyalaya (IGKVV), KVK etc. It will facilitate the process of exchange within and between communities, states, south-south countries and between developing and industrial countries.
 - Emphasis will be given to tribal to tribal knowledge exchange by facilitating the ideas and information to flow across the region. Further, considering the provisions of the PESA Act, the project will strengthen community institutions to not only comply with the provisions of the Act, but also to make it more participatory and inclusive.
- **Component 6: Contingent Emergency Response Component:** This zero-budget project component will ensure implementation flexibilities during future emergencies and disasters, especially in light of the fact that Chhattisgarh is a climate hotspot in South Asia Region, and may be vulnerable to droughts, locust/zoonotic outbreaks.

CHIRAAG Components



2.6. Geographic Scope and Target Population

2.6.1. Project Area

The project will be implemented across 14 blocks selected in 8 districts spread across the two agroclimatic zones (select southern and central blocks) in Chhattisgarh. The following table represents the list of selected CHIRAAG blocks and districts, followed by the graphical representation in the state map.

CHIRAAG Region	CHIRAAG Districts	CHIRAAG Block
Bastar Region	Kanker	Charama
		Narharpur
	Kondagaon	Bade Rajpur
		Makdi
	Bastar	Bakavand
		Bastar
	Narayanpur	Narayanpur
	Dantewada	Dantewada
		Kateklyan
	Sukma	Chindgarh
		Sukma
	Bijapur	Bhopalpattnam
		Bhairamgarh
	Bilaspur	Mungeli

The below table represents the total number of blocks, villages and number of gram panchayats across the selected regions:

Districts	Blocks	No. of Villages	No. of Gram Panchayats
MUNGELI	MUNGELI	260	124
BIJAPUR	BHAIRAMGARH	217	59
BIJAPUR	BHOPAL PATNAM	130	35
NARAYANPUR	NARAYANPUR	175	62
KANKER	NARHKMUR	118	66
KANKER	CHARAMA	97	60
BASTAR	BASTAR	110	78
BASTAR	BAKAWAND	111	76
KONDAGAON	MAKADI	96	60
KONDAGAON	BADERAJPUR	55	46
SUKMA	CHHINDGARH	78	57
SUKMA	SUKMA	52	32
DANTEWADA	DANTEWADA	56	33
DANTEWADA	KATEKALYAN	43	23
Total		1,478	811

2.6.1.1. *Justification for Block Selection*

A total of 14 blocks have been selected as CHIRAAG intervention area. In total, these 14 blocks consist of 811 Gram Panchayats, 1,478 villages and 2,99,003 HHs, out of which **the project has selected 1,80,000 HHs and 1,000 villages** for undertaking CHIRAAG intervention. Aligning with the vision of CHIRAAG's PDO, the project stakeholders have selected the blocks based on the extent of ST/SC population concentration, income of the HHs and the prevalence of malnutrition across the state area. Resultantly the primary criteria for selection of the following blocks is based on the % of tribal population, the level of poverty and the extent of malnutrition. The secondary factors include education, access to the basic infrastructure facilities (access of Pucca roads).

The **prioritization criteria for selecting the targeted blocks for CHIRAAG intervention** are as follows:

- Percentage of the tribal population across the districts;
- Poverty level in terms of their income bracket;
- Prevalence of malnutrition;
- Literacy levels across the tribal area;
- Access to infrastructure (including the Deprivation and Inclusion criteria)
- Left-wing extremism (LWE) affected areas; and presence of PVTGs.
- Other aspects for selection of targeted locations are population mobilized under community institutions (SHGs; JFMCs etc.), and government programs targeting similar or complementary issues (e.g. maternal care, dietary supplement programs etc.).

As per the Census 2011, Chhattisgarh has 7,822,902 Scheduled Tribe population, of this 3,873,191 are males, 3,949,711 are females and together this constitutes about 31% of the total tribal population in the state and about 7.5% of the total population in the country. Out of the total state-tribal population, about 2.3% of them are classified as PVTGs and these include; Kamar, Baiga, Pahari Korwa, Birhor,

Abujhmadia. The tribal groups are at different stages of social, economic and educational development. While some tribal communities have adopted a mainstream way of life, at the other end of the spectrum, there are certain Scheduled Tribes, 75 in number known as PVTGs.

Both the World Bank team and government officials concurred that tribal communities are poorly placed in terms of malnutrition and economic status. However, it was also agreed that tribal communities also have a wealth of natural assets, indigenous knowledge and traditional practices which should be protected from the unintended impacts of the project. The tribal population of Chhattisgarh is quite diverse in terms of caste, sociological traits (e.g. PVTGs) and livelihood patterns. The project design needs to be sensitive to the social customs, development perspectives and native worldview of the tribal population to enable its effective participation in the project activities.

The average literacy rate in the CHIRAAG block is lesser than the average literacy rate of the state; 53%, with some of the blocks having a very poor literacy rate of as low as in the range of 20-30%. As a result, these blocks have been given inclusion priority for rolling out CHIRAAG intervention. It is pertinent to note that though Chhattisgarh has made considerable progress over the years, the state still significantly lags when analysed across the various HDIs. More so, the tribal population in the state is also disadvantaged and economically weak as compared to the general class population. Some of the key points related to the HDI include the following:

- Dantewada and Sukma have the highest poverty rate, over 55% and are also the top two districts in terms of tribal population concentration. Resultantly, the literacy rate across these three districts is the lowest in the state at around 32.5% and 33.4% respectively.

Blocks	Total HHs	% Literacy	% Access to Pucca Road
CHARAMA	22,997	76.9%	97.8%
NARHARPUR	23,655	68.6%	87.6%
MUNGELI	49,524	64.5%	58.4%
BHOPAL PATNAM	10,465	55.2%	21.9%
BADERAJPUR	16,643	55.2%	83.1%
BAKAWAND	36,595	52.2%	85.7%
BASTAR	34,932	51.5%	87.6%
NARAYANPUR	16,493	45.2%	42.2%
CHHINDGARH	17,422	38.5%	50.5%
SUKMA	11,299	33.4%	54.2%
DANTEWADA	13,798	32.5%	81.8%
BHAIRAMGARH	15,628	29.3%	21.1%
KATEKALYAN	9,057	23.3%	76.0%
MAKADI	20,495	-	84.0%

- Another key criterion that has been considered while selecting the CHIRAAG intervention area has been the income level and the prevalence of poverty among the HHs. On an average about 92% of the HHs in the selected blocks fall in the category of extremely poor who have a monthly income of less than 5,000/- and have thus these blocks have been given the selection priority with income enhancement as one of the key objectives of CHIRAAG.

Blocks	Rural % HHs with Monthly Income of < 5,000	Rural % HHs with Monthly Income of 5,000-10,000	Rural % HHs with Monthly Income of > 10,000
SUKMA	97.1%	2.2%	0.7%

KATEKALYAN	96.9%	1.5%	1.2%
DANTEWADA	94.7%	3.5%	1.8%
BADERAIPUR	94.6%	3.9%	1.5%
MAKADI	94.2%	4.2%	1.6%
CHHINDGARH	94.2%	3.4%	2.5%
BAKAWAND	94.0%	4.0%	1.9%
NARAYANPUR	93.8%	4.4%	1.8%
BHOPAL PATNAM	93.0%	4.1%	2.8%
MUNGELI	92.9%	5.3%	1.8%
BASTAR	91.6%	5.6%	2.7%
NARHARPUR	91.6%	4.4%	4.1%
BHAIRAMGARH	91.4%	3.7%	4.9%
CHARAMA	88.9%	5.7%	5.4%

- Another key criterion for selecting the CHIRAAG intervention blocks is the concentration of tribal and backward classes in the region as they are the most deprived and excluded category. The objective of selecting them as the major unit on which the intervention will roll out is to ensure that the intended objective of increasing the income through development of sustainable livelihood opportunities is achieved for the most deprived section of the state.

Some of the key observations regarding the concentration of tribal population as one of the key criteria for selection of CHIRAAG areas are as follows:

- 62% of the total population across the selected blocks in the CHIRAAG Districts constitute the Tribal Population; 2,39,814 persons.
- In % terms, block-wise, Katekalyan, Bhairamgarh, Sukma, Chhindgarh, Dantewada have the highest tribal population
- However, by persons, block-wise; Bakawand, Bastar, Makadi and Narharpur have the highest tribal population, constituting 32% of the total tribal population across selected regions
- District-wise (constituting CHIRAAG blocks) and in person terms, Bastar, Kondagaon, and Kanker have the highest tribal population across the selected blocks and constitutes 42% of the total tribal population.

Block	Total Households	Number of SC Households		Number of ST Households	
		Number	% of SC households	Number	% of ST households
Bakawand	36,595	948	2.59	22,934	62.67
Bastar	34,932	609	1.74	22,639	64.81
Bhairamgarh	15,628	94	0.6	13,822	88.44
Bhopal Patnam	10,465	930	8.89	7,800	74.53
Dantewada	13,798	174	1.26	11,236	81.43
Katekalyan	9,057	85	0.94	8,432	93.1
Charama	22,997	1248	5.43	11,444	49.76
Narharpur	23,655	868	3.67	15,730	66.5
Baderajpur	16,643	477	2.87	12,531	75.29
Makadi	20,495	526	2.57	15,841	77.29

Block	Total Households	Number of SC Households		Number of ST Households	
		Number	% of SC households	Number	% of ST households
Mungeli	49,524	18193	36.74	2,141	4.32
Narayanpur	16,493	541	3.28	13,065	79.22
Chhindgarh	17,422	133	0.76	14,354	82.39
Sukma	11,299	31	0.27	9,576	84.75

2.6.2. Village Selection

Village selection criteria within the targeted blocks for CHIRAAG will follow a two-pronged strategy:

- **Village Selection Based on Gothan Location:** Currently, each Gothan is established at the GP level and caters to 2-3 villages in that GP. Based on the discussion with the project stakeholders it was decided that the villages surrounding the Gothan located at the GP of the project intervention area will be selected. As Government of Chhattisgarh has laid down concerted efforts for implementation of *Narwa, Garuwa, Ghuruwa, Badi* to bring rural transformation. The intervention is anchored in implementation of government schemes in a collaborative manner to improve production system and optimum utilization of natural resources. NGGB envisions to increase rural household income and sustainable management of the natural resources. Gothan is the anchor for implementation of NGGB in the rural areas. It provides a platform for implementation of key activities of the project as well as ensuring community participation. The villages in and around (the contiguous patch) the existing Panchayats would be selected.

Following is the rationale for selection Gothan as the basis for village selection:

- Villages surrounding Gothan have better connectivity with markets and better infrastructure
- The Gothan location has been selected by the district administration and thereby facilitates bottom up selection process
- The project objectives of income enhancement, nutrition improvement, climate resilience and natural resource management are anchored on NGGB and thus Gothan is selected as the entry unit
- Gothan has pre-existing community-based governance institutions (Gothan Committee) which will play a significant role in navigating the project activities, monitoring and overall coordination of the LGs with the CC and the BPMs
- Gothan committees developed in the rural villages are expected to drive the project in a participatory democratic manner.

Hence implementation of CHIRAAG in the Gothan villages would enable leveraging existing government system to foster the program implementation. Further the vision of CHIRAAG is significantly related to NGGB, thus the two projects would mutually complement each other to augment inclusive and sustainable development in the project area.

- **Villages Selection based on Project Priority Indicators:** Considering the PDO of income enhancement and nutritional improvement, the project proposes to cover villages also on the basis of a higher score in the project priority indicators, in addition to the villages that are in close vicinity to Gothan. These project priority indicators will be based on the SECC criteria and includes the following:
 - Malnutrition indicators (derived from Vajan Tyohar)
 - Small and Marginal Farmers,
 - PVTG population (characterized by Pre-agriculture level of technology, Stagnant or declining population, Extremely low literacy, Subsistence level of economy)
 - Women headed household
 - Landless farmer
- The above indicators would be assigned a weighted average score and the villages receiving the highest score will be selected
- It is possible that the villages receiving the highest score are the same as those selected through the first strategy (Gothan Villages), in such instances, villages with the second highest score will be considered for including in the project intervention area

- **Selection of Total Gothans and Villages:** Currently there 348 Gothan in the CHIRAAG intervention areas and it is expected to increase to 500 until the start of the project. Given the limited resources the project proposes to work with 500 Gothans
 - Overall the project envisions to enter approximately 1000 villages (500 Gothans covering 2 villages) over the project duration
 - The two villages selected around Gothan (including the one where Gothan exists) will be based geographical contiguity of those villages
 - Out of the total 1000 villages, roughly 800 villages will be selected basis the criteria of presence of Gothan, and the remaining 200 villages will be selected based on scores from project priority indicators

2.6.2.1. Commodity Cluster Approach

The commodity cluster approach will be focused upon the value chain interventions under the project. Over and above the villages selected based on the two-pronged strategy, the project could loop in additional villages from those areas that form a part of a geographical cluster where the value chain development initiatives are being rolled out.

- The commodity clusters could go beyond Gothan cluster and could include a larger area with a logic of economic cost
- The economic cost criteria would be broadly defined on the following concepts:
 - Presence of Producer Base;
 - Availability of Market Surplus;
 - Presence of existing commodity cluster;
 - Facilities and connectivity to the main markets;
 - Maturity of the VOs and other village level institutions and such factors

2.6.3. Project Beneficiaries

CHIRAAG envisions to cover 1,80,000 HHs over the span of six years. The primary project beneficiaries would be the rural households, the majority of whom will be tribal population, smallholder and landless households, and women, in the selected blocks of rural Chhattisgarh. The beneficiary households will be selected for inclusion in the project through a participatory, community-driven process that will employ well-defined criteria.

Selection of beneficiary would be based on the specific project interventions and the project would not exclude any resident of a CHIRAAG village from availing the benefits. It is pertinent to note here that the rollout of the intervention will take place at two levels:

- **Extensive Interventions:** Those activities that will be undertaken with all the HHs across the selected villages. For instance, Individual Badi Development will be available for all the HHs in that targeted village, access to revolving fund is also open to all the HHs in a village on the fulfilment of certain pre-requisites such as formal membership in the LG and such others
- **Selective Interventions:** Those activities that will be undertaken with only selected HHs across the selected villages. For instance, provision of gravitational drip irrigation facility to the farmers is available for few farmers who would meet the beneficiary selection criteria such as availability of minimum land and water for irrigation etc.

2.6.4. Phasing-in Strategy

Unit of Entry	Y1	Y2	Y3	Y4	Y5	Y6	Total Coverage (Block / Village / HHs)
Entering Project Block	14	14	14	-	-	-	14

No. of Gothans entered in each project block	8	13	15	-	-		-
Total Number of Gothans Entered across all blocks	112	182	210	-	-		504 (rounded off to 500)
No. of Village entered per Gothan (contiguous patch of villages surrounding the selected Gothan)	2	2	2	-	-		-
Total number of Villages entered across all Gothans	224	364	420	-	-	-	1,008 (rounded off to 1,000)
Total Number of HHs Covered	11,200	40,320	61,320	61,320	5840	-	1,80,000

- **Phasing for the CHIRAAG District:** The project has proposed to open all the 8 districts in the first year
- **Phasing for the CHIRAAG Blocks:** The project proposes to open all the 14 blocks in the first year.
 - The strategy is to open only one block across the 8 districts (two of the CHIRAAG districts have one block only), in the first year
 - The remaining 6 blocks (across 6 districts) will be opened in the same year at a gap of 3 to 4 months; post entering the first set of blocks, replicating the same set of VDP resources as deployed in the first set of blocks
- **Phasing for the Gothans in CHIRAAG Blocks:** The project proposes the following strategy for Gothan phasing:
 - In the first year, the project proposes to enter eight Gothans across all the 14 blocks; resultantly reaching to 112 Gothans entered in the first year of the project
 - In the next year, the project proposes to open 13 Gothans (in each block), followed by 15 Gothans in the third year, cumulating the coverage to 500 Gothans by the end of three years
 - It is pertinent to note that currently there are 348 Gothans in the project area and by the time the project is expected to kick-off the number of Gothans would reach to about 500 in the selected areas.
- **Phasing for Villages in CHIRAAG Blocks:** The project proposes the following strategy for village phasing in:
 - Two villages surrounding the Gothan (phased out in the initial step) in that block will be selected
 - Consequently, in a single block 16 (number of Gothan opened in one block in first year * number of villages per gothan = 8*2) villages will be opened in the first year; leading to the entry for 224 villages (112*2) in the first year
 - Similarly, in the second and third year, the number of villages opened per Gothan will be two only, however, as the number of Gothans phased out in the second and third year will increase, the total number of villages covered will also increase; 2nd year (26*14 = 364) and 3rd Year (30*14= 420)
- **Phasing for HHs in CHIRAAG Villages:** The strategy assumes that in the first year of the project, only 50 (out of the average 180 HHs in a village) HHs will be covered, followed by roughly 80 HHs in the next year, and 50 HHs in the third year.

The following table depicts the Gothan centers mapped with the CHIRAAG blocks.

Districts	Blocks	Gothans (#)
Bastar	Bakawand	42

	Bastar	46
Bijapur	Bhairamgarh	18
	Bhopalpatnam	14
Dantewada	Katekalyan	5
	Dantewada	7
Kanker	Charama	30
	Narhapur	35
Kondagaon	Baderajpur	5
	Makadi	11
Narayanpur	Narayanpur	54
Sukma	Chhindgarh	10
	Sukma	5
Mungeli	Mungeli	66
Total		348

3. Component 1- Community Empowerment and Institutional Strengthening

Chhattisgarh has around 7.91 million tribal population constituting 31% of its overall population⁸². The tribal population in the state belong to the forty-two (42) different ST groups and all have been enumerated in 2001 census and subsequently in 2011. Among these five scheduled tribes, Pahadi Korwa, Abujhmadia, Kamar, Birhor and Baiga have been classified as Particularly Vulnerable Tribal Groups (PVTGs) during the fifth five-year plan. Recently two another tribe namely Pando and Bhunjia declared as a primitive tribe by the state. Numerically less, PVTGs most excluded among tribes, they constitute 1,55,057 individuals in the state⁸³. Though traditionally tribal communities have been dependent upon the forest for their livelihood and other survival needs, over the period most of the tribes have adopted the settled agriculture for their living.

Government of Chhattisgarh has implemented multiple community-based interventions, which have proved to be successful in driving the bottom up process of rural transformation and women empowerment. The

The project CHIRAAG is focused on the tribal dominated Southern and Norther regions of the state. These regions have low Human Development Index and are homestay for the most backward tribal communities. The project aims at enabling inclusive development in the state through holistic development of the tribal communities in the state.

There are a number of SHGs and VOs and NRLM model and multiple NGO based models have been proved to be successful in improving the socio-economic situation of the poor in the rural areas. Presence of so many SHGs and VOs in the state has proved that these community-based institutions have proven to be successful in improving the socio-economic situation of the members. The presence of so many SHGs and Vos provides an unprecedented opportunity to learn from the best practices. CHIRIAAG envisions to leverage the similar community owned model for anchoring the integrated farming system models. It envisions to capacitate the community for effective natural resource management, along with that enhance production systems. Usually developmental programs focus on improving productivity and income enhancement, but CHIRAAG project would complete circle back the benefits to the community in the form of income and nutrition. It would capacitate and enable behavioural change exercise for improving the nutrition and WASH practices within the community.

It would also ensure environment and social development indicators.

CHIRAAG envisions to anchor the entire project in democratic institutions of the poor, spearheading inclusive developmental models developed through participatory planning with the target population.

The project fundamentally targets to increase rural household income generation and nutrition intake through various Behavioural Change Communication Strategies, with a special focus on the tribal population that accounts for 33% of the total population in the state. The project will mobilize the village communities in 'livelihood groups' (LG), strengthen the existing Gothans by promoting CHIRAAG Resource Centres (CRC), promote farmer producer organizations (FPO) and support these community institutions to access markets for in accelerated and inclusive rural transformation.

The core principle for this components are participatory planning, institution building, capacity building and nutrition training and capacity building that will anchor behavioral change and transformation initiatives at the level of community enabling sustainable adaption of key practices leading to nutrition security

3.1. Participatory Village Planning and Community Institution Building

Government of Chhattisgarh has laid down significant efforts for transforming the rural economy through developing bottom up models of rural development. Concerted efforts have been laid down to promote FPOs, Organic Production Clusters, SHGs, and Producer Organizations. Implementation of

⁸²“Chhattisgarh Profile” Census Info India 2011

⁸³ Ibid

NGGB has been the cornerstone of democratic agrarian development in the state. With 5168 number of total Gothans, NGGB has progressively enabled community managed natural resource management; promote nutrition supportive production systems, foster livestock health and management. CHIRAAG envisions to bolster the efforts of the Government through developing and strengthening the community institutions for democratic program planning and implementation.

The component would lay down the foundation anchored on three factors: (i) Participatory Planning: developing Village Development and HH level plans, (ii) building robust community institutions at multiple levels – LG, CRC, FPOs (iii) Strengthening capacities of the community institutions toward democratic management of the institutions, effective management of the natural resources, and community and private assets.

The main Objectives of the Sub-Component are:

- Participatory planning at the village level which includes HH level MIP, Village Development Plans (vdps) as well as investment around Gothan, basis which all the project interventions will be rolled out
- Community mobilization and formation of robust community institutions at multiple levels – LGs, CRCs, FPOs
- Enable robust community-led project implementation, management and monitoring
- Strengthen community institutions towards natural resource management, sustainable production, value addition, and access to market
- Enable effective convergence among multiple stakeholder and key defined government departments for seamless program implementation
- Strengthen state's capacity for developing and nurturing the community institutions for ensuring post-project sustainability
- Facilitate the community in democratic decision making and participating in the village and panchayat development

Following would be the activities in the Sub-Component:

3.1.1. Participatory Village Planning

The Participatory Village Planning is the starting point for developing comprehensive Village Development Plans along with HH level specific plans for the CHIRAAG intervention areas. This planning process aims to identify, assess, diagnose, and map the existing natural resource base in the village and the HHs of the village to use the database towards building the Integrated Farming System in the targeted areas. Further the HH plans would zoom-in to the level of each individual family among the target population and map their socio-economic status and aspirations. Another key element of the planning process is the community and social mobilization and CHIRAAG concept seeding among the local population to onboard them with the PDO.

3.1.1.1. *Key Objectives of the Participatory Village Planning Activity*

- 1. Spearheading the project entry activities:** VDP would be the first step of the project, it would roll-out the entry point activities for community mobilization and building rapport. The entry point activities would prepare the pitch for project implementation. It would lay down three-fold strategy, firstly it would mobilize the community in the target areas. Secondly, it would introduce the project to the community through door-to-door and group discussions. The VDP team would share the project objective, goals and vision with the community. Thirdly through focused group discussions and targeted activities the team would try to assess the overall socio-economic needs and expectations of the community. VDP is a very critical activity through the perspective of initial introduction and rapport building.
- 2. Natural Resource Assessment:** The VDP would fundamentally lay the ground for participative natural resource assessment. The TSA and VDP team would leverage the tools like Participative Rural Assessment, Transact Walk and other tools for conducting a detailed village assessment and mapping the natural resources: forest, land (private, public, FRA), livestock, water structures –

pond, dyke, well, check dams, etc. It would conduct a qualitative and quantitative assessment of the assets and resources as along with the number type of livestock the VDP would also assess the type of livestock – indigenous, high quality breed; type of soil quality, etc. Further it would also take into cognizance the cultural and religious aspects as community gathering places, temples, mosque, church, school, panchayat bhavan, etc. Further it would map the collective assets like common grazing land, pastures, community ponds etc. It would also entail the mapping of village infrastructure, canals, roads, school, primary health care centres, Anganwadi, etc. It shall map and account for the overall portfolio of the village along with the social, economic and cultural aspects of the community

3. **Micro planning at the level of Households:** VDP would be conducted at the level of villages and it would penetrate to the level of household planning. It would have three-fold approach, firstly to understand the socio-economic aspects of the community -income and expenditure sources, financial planning, assets debt, secondly understand the livelihood practices and behavioural patterns – studying the crop planning, manner of using natural resources, food intake and nutrition patterns, health and sanitation linked behaviours. Thirdly, it would gather information about the social and cultural aspect of the community – understanding the caste pattern, social standing and dynamics of the community. HH planning would be fundamentally based on the Integrated Farming System Approach. The information collected at socio-economic, behavioural and cultural aspects would form the foundation of developing IFS models and plans for the village and individuals
4. **Participatory Approach to planning the village development:** To achieve the objectives CHIRAAG will center the execution of all the activities around the community and the existing institutions at the grassroot level. The participative process would be carried out to develop village level plans for natural resource development, IFS based livelihood models, socio-economic development, women empowerment, enhancing the outcomes of nutrition, health and sanitation. It is pertinent to note that if the plans prepared by outside experts, irrespective of their technical soundness, cannot inspire the people to participate in their implementation. As a result, social mobilization is the kingpin of the entire planning process pivoted on community engagement to instil the ownership of the plans and the intervention among the village people. Participation in the village development process ensures a feeling of 'ownership' and pride in the achievements of the village and therefore leads to better usage and maintenance of assets that are created. This would also serve as a strong medium for ensuring the post project sustainability.

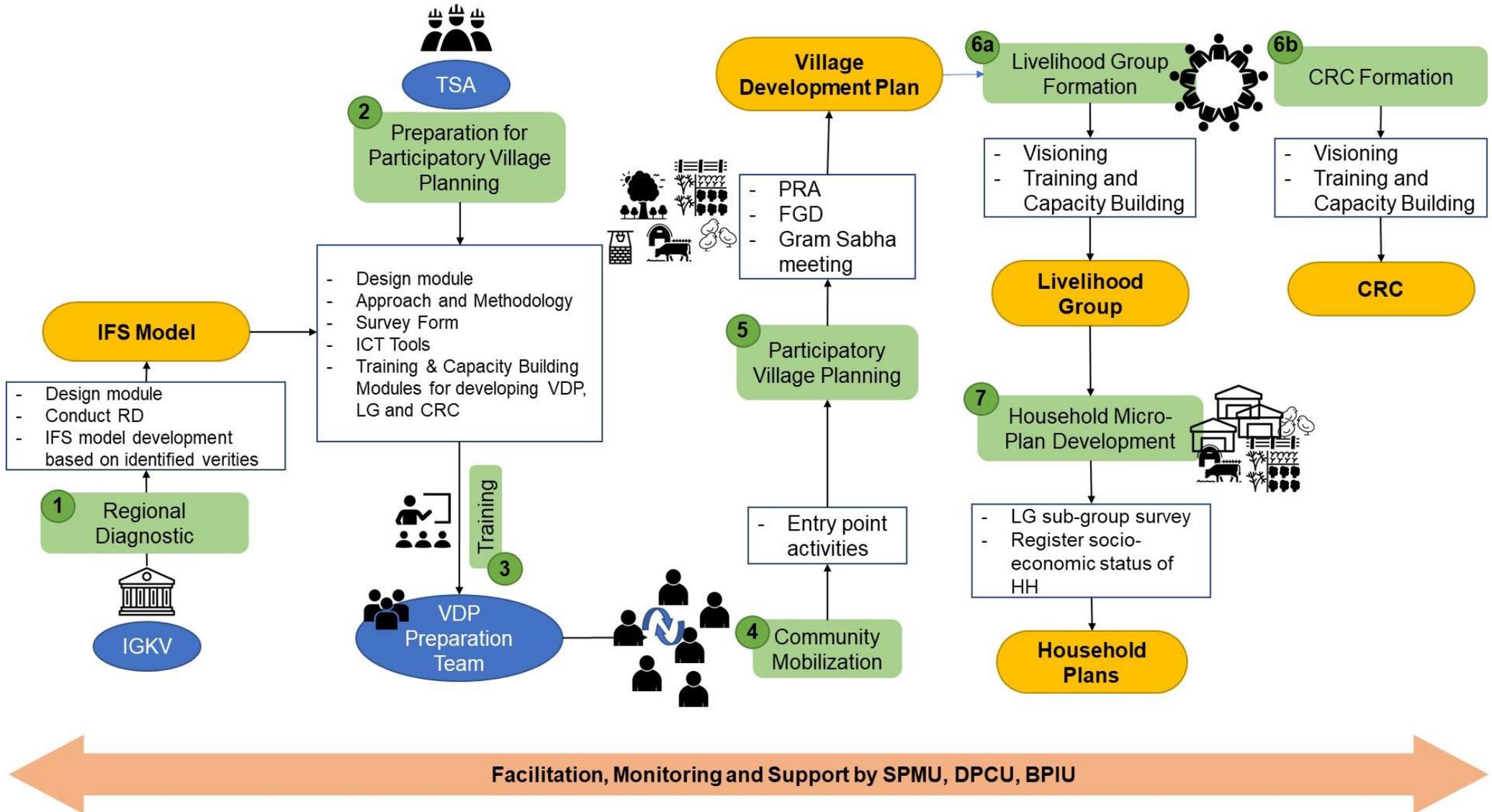
3.1.1.2. *Key principles of CVDP under the project*

1. **Development of IFS (Integrated Farming Systems):** One of the key principles that will work in the background towards the development of the CVDP is the integrated farming approach that each village as well as the HHs in a village will adapt at the end of the planning exercise
2. **Natural Resource Management (NRM):** The project envisions to function in the backdrop of community natural resource management – soil and water conservation and restoration so these are the critical aspects in the project success. The CVDP will have to be built around this concept that integrates all the intervention with the NRM
3. **Ensuring HH Nutrition and Income Enhancement:** The CVDP will be done on the fundamental grounds of achieving the PDO. It would facilitate in assessment of the resources to identify potential growth areas for increasing income through livelihood diversification and production intensification. Further It would support in assessment of nutrition levels of the community and potential sources for enabling nutrition security
4. **Integrating Climate Resilience:** Another key principle of CVDP is the integration of climate resilience across all the interventions and efforts towards developing IFS in the backdrop of NRM
5. **Participative Process:** VDP would be conducted in a participative manner to enable belongingness and ownership to the participants. The tools of participative planning would be leveraged to a platform to discuss and argue about ideas in open forum with all stakeholders
6. **Community Empowerment:** The process of VDP would be anchored in ensuring the inclusion of the marginalized community. The process of participative planning would not be successful unless there is appropriate representation from the marginalized population. The VDP would ensure that the voices of women, tribal, schedule castes, and PVTGs are heard and they are encouraged to

share their perspectives on village and self-development. Thus, enabling the process of community empowerment

7. **Scientific and Evidence Based Planning:** VDP would leverage the tools of effective data collection and assessment for enabling evidence-based planning. This would support the community and multiple stakeholders in making an informed decision about the status and needs of the community. Further advanced scientific tools of GIS mapping would be leveraged to develop scientifically backed up and accurate plans for natural resource management.
8. **Compliance to the Environment Social Management Framework (ESMF):** The natural resource assessment would take into consideration baseline, environmental impacts and mitigation measures outlined in the ESMF disclosed under the project.

Holistic View of the Activity:



3.1.1.3. *Sub-activities to be spearheaded*

I. Pre-Planning

The pre-planning phase would include partnership and convergence with suitable organizations. The project leadership, Project Director, State Project Manager IFS would identify suitable organization which would support in development of VDPs. The idea would be to identify and work with the agencies having expertise in the Village Development process and have in-depth understanding of the regional context of the state and project geographies. The on-boarded agency (TSA) would first conduct a regional diagnostic survey which would support in developing Integrated Farming System models for the project. This will feed into the project planning through village and HH development plans.

I.1. Partnership with IGKV (Indira Gandhi Krishi Vishwavidhyalaya)

IGKV, the State Agriculture University, is the leading agriculture research and education institute in India. IGKV would play a pivotal role as a Technical Support Agency. In the context of participatory village planning the agency would spearhead the Regional Diagnostic exercise, this would form the foundation of conducting participatory village planning. The regional diagnostic will identify the potential farming systems specific to block of the project location. The list of farming systems would be shared with the local community at the time of participative planning, this would enable the community to take an informed decision and select the suitable system based on their economic context and capacity.

Hence, IGKV would play a significant role, right from the beginning of the project. The project has decided to explore partnership with IGKV, as it is the leading research and teaching facility in the country. The university has laid down significant efforts for improving the agrarian situation of the paddy surplus state. It has been the forerunner in agricultural research and developing innovative pilots focusing for advancing agriculture practices. At the same time the university has developed interventions and around contextual Integrated Farming System Models for improving the livelihood and agrarian income of the small and marginal farmers. The university has developed research on Precision Farming, developing climate resilient varieties of crops for each agro-ecological zone of the state. It has also taken initiatives for conserving the germ plasm for indigenous varieties of crops like scented rice, developed state of art draught screening facility, fortified varieties of crops, developed tribal farming system.

Considering the leading edge of IGKV in the space of agriculture development, the project envisions to develop a partnership with the university for technical advisory, training and capacity building. The university is also managing the Krishi Vigyan Kendras promoted by ICAR. Hence the collective partnership with IGKV would provide regional support to develop Integrated Farming System Models.

IGKV would provide support to the project at multiple levels. Broadly IGKV would be responsible for:

- a. Analytics for supporting block and village level planning
- b. Developing models of Integrated Farming Systems based on the natural resource and human resource endowment including setting up of technical demonstrations of various models
- c. Developing a Training and Capacity building plan and executing the same at the block level
- d. Implementation support to the CHIRAAG project team to scale up the IFS models, mainly to ensure quality of demos, and knowledge dissemination
- e. Technical support to project implementation, including knowledge partnerships and fostering innovation through conducting and facilitation of various events, and workshops

Following table summarizes the major tasks to be performed by the university facilitating effective implementation of the project

Sr. No.	List of Tasks per formed by the University	Project Stage and Component
1	Undertaking Block Level Diagnostic - Preparation of guidelines/Standard Operating Procedures (SOPs) for the diagnostic study and IFS planning	Planning: <u>Participative Planning Process</u>

	<ul style="list-style-type: none"> - Conducting Block Level Regional Diagnostic informed by Gothan - Identify elaborate IFS models specific for different project regions 	
2	Developing Seed Production Program	Planning: <u>Integrated Food and Nutrition Supportive Agriculture</u>
3	Technical Support on Sustainable NRM and Best Practices	Planning: <u>Community Based Natural Resource Management</u>
4	Technical Training Design and Delivery – Capacity Building of the Project Staff and Master Trainers for IFS, Nutrition Supportive Agriculture Production Practices, Climate Resilient Agriculture Practices, Soil Health Management and Biodiversity Conservation, Pest Management, Package of Practices and other relevant trainings recommended under the ESMF,	Implementation: <u>Diversified, Resilient and Nutrition-Supportive Food and Agriculture System</u>
5	Designing and Implementing IFS schools, defining the skills and knowledge requirements of community resource persons and – Organising Technical Demonstrations	Implementation: <u>Diversified, Resilient and Nutrition-Supportive Food and Agriculture System</u>
6	Implementation Support for Seed Production and technology adoption	Implementation: <u>Integrated Food and Nutrition Supportive Agriculture</u>
7	Implementation support – Partnerships, Knowledge exchange, Coordination, Monitoring and Documentation	Implementation: <u>Multiple stages</u>
8	Driving Innovations and Promoting Traditional Local Practices	Implementation: <u>Knowledge Management and State Capacity</u>

The potential of the partnership would be explored, and the MoU would be signed with the IGKV and KVK during the initial phase of the project.

IGKV is also managing KVK (Krishi Vigyan Kendra). For the continuous need of generation and transfer of location-specific technologies, which are also economically viable and socially desirable, with significant feedback from NARS, the ICAR has setup Krishi Vigyan Kendras (KVKs) in every district⁸⁴. The KVK primarily aims at location-specific assessment of technology modules through technology assessment, demonstration and refinement in agriculture and allied sector. They have been functioning as Knowledge and Resource Centre of agricultural technology supporting initiatives of the public, private and voluntary sector for improving the agricultural economy of the district. The KVKs are district level Farm Science Center which is sponsored by the ICAR⁸⁵. In Chhattisgarh KVKs are sponsored by the IGKV university. The role of KVK in shaping agricultural research for growth, development and livelihood security in Chhattisgarh⁸⁶ is immense. At present, there are 28 KVKs functional in the state at- Kabirdham, Korea, Jashpur, Kanker, Rajnandgaon, Korba, Dantewada, Baloda Bazar, Janjgir-Champa, Raigarh, Dhamteri, Mahasamund, (4 in) Surguja, Durg, Bastar, Bilaspur, Narayanpur, Gariyaband, Bijapur, Raipur, Bemetara, Mungeli, Balod, Sukma and Kondagaon⁸⁷. The KVKs are progressing as grass-root level institutions in the state for the development and empowerment of the farming community and are also instrumental in the state's agriculture growth.

⁸⁴<https://kvk.icar.gov.in/download/ReportofKVKRankingStudy.pdf>

⁸⁵<http://www.kvkdurgigkv.org/establishment.html>

⁸⁶<http://www.igau.edu.in/pdf/profile2012.pdf>

⁸⁷<https://icar.org.in/content/chhattisgarh>

The Technical Support Unit of IGKV would comprise of resources at State and District Level, positioned with the project and KVKs. The team structure and detailed roles and responsibilities is as follows:

Sr. No.	Key Experts	Staff (#) and Level of efforts (days in month)	Key Tasks	Qualification and Experience
1.	Team Lead (Full-time)	1	Developing and piloting Integrated Farming System Models; Designing and delivering technical trainings and conducting demonstrations; Designing and implementing IFS schools; Providing support in INRM strategy development and knowledge sharing with the other relevant TSAs under the project; Provide technical inputs on seed production; Provide implementation support to accelerate technology adoption, facilitate knowledge partnerships, Technology transfer, Coordination, Monitoring and Documentation; Providing support in Driving innovation promoting traditional local practices; Quality control and overall monitoring towards the implementation of the key activities	<p>Qualification: A PhD holder from a recognised college or equivalent in Agriculture/ Social Sciences/development studies or other related fields.</p> <p>Experience: 15+ years of experience across collaborative and applied research diagnostic studies, quantitative and qualitative data analysis, developing and piloting Integrated Farming System Models, INRM, and seed production across the rural based livelihood projects in the areas of agriculture, horticulture and livestock, fisheries and other allied activities. Further the TL should have an extensive experience in designing and delivering technical trainings and demonstrations, designing and implementing IFS schools in the above-mentioned areas</p>
2.	Senior Research Fellow (Full-time)	16 (14 SRFs placed at KVK level and 2 at the State level)	Undertaking block level diagnostic; Data collection, interpretation and analysis through on ground research and visits, Support in Stakeholder Consultation Workshops; Support towards designing and delivery of training and demonstration; Proficiency in handling and analysing large data sets (comfortable with usage of tools such as SPSS, STATA, EXCEL etc.); Experience of conducting qualitative research using tools like Focus Group Discussions, Stakeholder Consultations, In-depth interviews, informal interactions and Case Study documentation;	<p>Qualification: Should be a PHD holder from a recognised college or equivalent in Agriculture or other related fields.</p> <p>Experience: 2+ years of experience in the field of research, diagnostic study, quantitative and qualitative data collection and analysis, Integrated Farming System Models, across the rural based livelihood projects.</p>

Sr. No.	Key Experts	Staff (#) and Level of efforts (days in month)	Key Tasks	Qualification and Experience
			Ability to connect with varied stakeholders (including the tribal farmers and existing CBOs) and engage in productive dialogues for the project; Travel extensively to rural areas across 14 blocks, Extension support in undertaking lesioning and networking with technology and other innovative partnerships, support in technology uptake at field level, Support in rolling out seed production plan development and support towards developing and implementing other activities as mentioned in the scope above.	
3.	Research Associate (Full-time)	2	The RA is required to work on large data sets, conduct field-based surveys and qualitative discussions with stakeholders, prepare reports and coordinate activities, as required from time to time. The position involves extensive travel to various locations across the project blocks. Key task would be as follows: Development, pre-testing and finalization of data collection instruments and protocols; Carrying out field-based surveys and discussions; Engage in stakeholder consultations and coordination for knowledge events; Document best practices and other learning case studies; Assisting in developing Master Trainers; Develop project reports at regular intervals, among other tasks within the scope	Qualification: Master's Degree or equivalent in Agriculture Social Sciences/development studies or other related fields. Experience: 3+ years of experience in research and diagnostic studies, quantitative and qualitative data analysis, study and analysis on Integrated Farming System Models, across the rural based livelihood projects in the areas of agriculture, horticulture and livestock, fisheries and other allied activities.
4.	Professor – Agronomy with experience in IFS Agric and Horti Production System (Part-time)	1	Guidelines and technical manuals of IFS; Package of Practice (PoP)	At least 20 years of progressive experience in related technical areas with considerable field level experience in tribal areas.

Sr. No.	Key Experts	Staff (#) and Level of efforts (days in month)	Key Tasks	Qualification and Experience
5.	Professor - Plant breeding/Seed technology	1	Guidelines and technical manuals for community seed banks; Package of Practice (PoP) for seed production	To Be Discussed
6.	Professor Fisheries – and Livestock	1	Guidelines and technical manuals of IFS; Package of Practice (PoP)	To Be Discussed
7.	Professor Nutrition –	1	Guidelines and technical manuals of nutrition supportive agriculture; Package of Practice (PoP) to ensure food safety and enhancing nutritive value	To Be Discussed
8.	Professor Agriculture Extension –	1	Design, development and implementation of IFS Schools; including finalization of technical manuals, IEC materials etc.	To Be Discussed
9	Data Entry Operators	2	Helping and assisting the State team in all project documentation and deliverable documentation at the State level and entry in the MIS as per the requirement	To be Discussed
10.	Environment and Social Officer	1 Full Time	Provide technical inputs on preparing the training modules on ESMF; organize and impart TOT; provide continuous support in integrating ESMF requirements in IFS models and during demonstrations; support ongoing data collection and analysis; coordinate with SPMU/DPMU on any technical advise related to ESMF; undertake periodic field visit to oversee the performance of ESMF; any other related task	A post graduate in environmental/social management with at least 10 years of relevant experience in management of natural resources, farm and community level groups, M&E, ability to conduct training. Familiarity with the World Bank's new Environment and Social Framework would be an advantage.

I.2. Regional Diagnostic

The project entails providing a gamut of livelihood services to the farmers. These services entail major domains – agriculture, horticulture, veterinary, fisheries. Further to enable the development of these domains, enhanced support would be provided for optimum and effective utilization and management of natural resources. CHIRAAG envisions to improve the income and nutritional levels of the community through enhancing the livelihoods and effective management of the natural resources. Hence it is inevitable to map and assess the existing resources and develop an integrated plan for optimum utilization. Further Chhattisgarh is divided into 3 agro-climatic zones – Northern Hills, Bastar Plateau, Central Plains. These zones are classified based on unique features and agro-climatic characteristics. It is imperative to conduct regional diagnostic to identify potential areas of interventions suitable to the local agro-ecological condition of the geography. Regional diagnostic would be conducted during the initial phase of the project. This would be the first activity before entering into the field location.

IGKV will undertake regional diagnostic study at the Block level (to be conducted by the KVKs with support of State level officers of IGKV). This will aim to identify the potential areas of interventions, in line with the PDOs (across agriculture, horticulture, livestock, fisheries and primary food processing where necessary) in the 14 blocks of CHIRAAG, based on agro-climatic suitability, natural resource endowment and market demand. The output of this regional diagnostic would be a comprehensive set of agriculture and allied activity-based livelihood models based on:

- CHIRAAG Program Development Objective
- Agro-ecological zones
- Rainfed and/or Irrigated area
- Soil structures and profiles of Upland, Midland and Lowland
- Size of the land for open field and Badi
- Availability and requirement for proper nutrition at a HH level
- Availability/abundance of living natural resources (biodiversity), which may play a key role in diversification and development of integrated farming systems

The entire activity would be spearheaded by IGKV and KVK in close monitoring of the SPM IFS. Following points enlist the set of activities that would be performed for regional diagnostic, along with the role of project staff, IGKV and KVK:

Regional Diagnostic to assess aspects related to nutrition

Diagnostic at region/district/block level	Responsibility	Time line & outcome
<ul style="list-style-type: none"> • Analysis on situation of nutrition • Food consumption patterns and gaps in diets • MIYCF practices • Gaps in nutrition services 	<ul style="list-style-type: none"> • GoCG to enter into partnership with the technical agencies with expertise in MIYCF & diet diversity who intrun to support TSAs in development of assessment tools for diagnostic of nutrition. • Data collection and analysis by TSA-IGKV with a dedicated team including a nutrition professor as a team member 	<ul style="list-style-type: none"> • 1st month : MoUs with the technical agencies with expertise in MIYCF and dietary diversity to provide TA under CHIRAAG • 1st Quarter : Data collection, analysis and dissemination of results by TSA IGKV • 2nd Quarter: Analysis from the diagnostic would feed into CVDPs in pilot villages

- **Preparation of guidelines/Standard Operating Procedures (SOPs) for the diagnostic study and IFS planning:** IGKV will prepare operations manual that will include details on all the process/guideline regarding the rollout of the diagnostic study. This will include the following sub-activities;

- Developing the list of specific processes/steps
- Defining the datasets required for planning
- Designing the data collection formats and templates
- Consulting the relevant stakeholders and gathering information to design the flow of the diagnostic process
- Detail out all the roles, responsibilities and training of the cadres, experts and such other people to be involved in undertaking the diagnostic process
- Estimate timelines and prepare schedules for completion of the sub-activities
- Ensuring alignment of SOPs to the ESMF disclosed under the project

These guidelines would be reviewed by SPM IFS and approved by the PD CHIRAAG.

- **Conducting Block Level Regional Diagnostic informed by Gothan⁸⁸ Level Data for 14 blocks:** IGKV along with KVK would conduct regional diagnostic for the selected blocks, focussing on the landscape of the Gothans in the selected blocks, as per the process outlined in the SoPs. This will broadly include the following tasks:
 - **Study various indicators;** biodiversity, agro-meteorological, rainfall pattern, soil type, agro-ecological, the farming system and choice of crops currently grown, community practices, interlocking relationship between land-water-forest-livelihood, issues related to land and quality, water availability and quality, extent and status of grazing lands/pastures, forest and access to it, extent of community and individual land titles granted under Forest Rights Act (FRA), climate change impacts and such other factors
 - **Collect data from the field in convergence with KVK:** Senior Research Fellows positioned at each block would be responsible for data collection from the field. They may take support from other district level officers of KVK for the exercise. This will include data collection from field, secondary data, as well as connecting and liaising with the existing research centres of the state and national level to collect the necessary data
 - **Analysing Data:** State Level SRF and Research Fellows would be responsible for data analysis under the supervision of the Team Lead. The collected data will be put to analysis to identify the potential areas for performance of the economic activity; for instance, suggesting suitable cropping patterns, identifying local varieties which may have potential market, potential areas of fisheries will be identified as well as the diagnostic would also enable assessment of the areas for new pond development through the study of the GIS/topographic maps, the catchment areas of the nearby watershed bodies and such other indicators.
- **Identify elaborate IFS models for different project regions:** Based on the key outcomes from the diagnostic study for all the 14 blocks and a preliminary IFS benchmarking study (identifying and studying the key trends of IFS models across various states to bring in best practices and innovative IFS models), the regional/block/cluster level IFS models will be developed by the IGKV that will classify and map the assorted activities (Agriculture, Fisheries, Poultry, Goatery, Sericulture, Agroforestry, Beekeeping and such other activities). The activity would entail the assessment of the multiple livelihood models based on agriculture and allied activities suitable for the project location. These models would provide a nudging point for the project staff to motivate the community for:
 - Adapt Integrated Farming System
 - Enable crop diversification based on agro-ecological zone-wise suitability
 - Adapt to climate resilient crops and cultivation practices
 - Promote adaption of livestock breeds (goat, pig, cattle) suitable for the agro-ecological condition
 - Adaption of high nutritive and indigenous variety of crops
 - Promote cultivation of indigenous variety of fish, crops
 - Promote mixed cropping and agro-forestry models
 - Ensure alignment of the models to the ESMF disclosed under the project

⁸⁸ Under the NGGB Program of the State Government, the Garuwa (livestock) program is for protection and improvement of livestock, especially milch cattle through the provision of cattle sheds (Gauthan) in each village. Managed by gram sabha, they would function as 'Daycare centers' equipped with fodder, water, and AI facilities.

Block level SRFs, deployed at the KVK would be responsible for identification of the IFS models at the different project locations. State level SRF, RF, and Team Lead would document the models and design a report. The report would be reviewed by the SPF IFS and approved by the PD CHIRAAG

- **Identification and Selection of crop/livestock/seed varieties:** IGKV will be responsible for the following:
 - Identification and shortlisting of the agriculture and horticulture crops which has the potential to meet the food and nutritional requirement of the households as well as for income enhancement (for instance the indigenous and nutritious varieties; pulses, cereals, oil seeds, millets, fruits and vegetables etc.)
 - Identify the potential livestock-based activities, which are contextual and has the potential to grow and meet both market need and nutritional requirement
 - Identify traditional/local varieties which has potential for promotion on a large scale
 - Identify the necessary seed and inputs requirements based on the diagnostic study
 - Identify and select potential indigenous species under agroforestry based on the results of the diagnostic study and IFS model prototypes developed
 - Coordinating with TSA working on Nutrition and BCC for identification and promotion of nutrition-smart Agriculture

Block level SRFs, deployed at the KVK would be responsible for identification of the crop/livestock/seed varieties at the different project locations. State level SRF, RF, and Team Lead would oversee the field research, document the insights and design a report. The report would be reviewed and approved by the SPF IFS

- **Identification of infrastructure, equipment and implements required for the project area and crops being promoted:** IGKV would also:
 - Identify and shortlist various women friendly and climate resilient technologies, tools and implements required across the project blocks
 - Identify of relevant locations and cases for the Custom Hiring Centres and Processing Centres across the project locations vis-a-vis the stated need of farm equipment; technology resource mapping based on the finalization of area specific activities defined through regional diagnostic and IFS models.

Block level SRFs, deployed at the KVK would derive inputs from field women friendly and climate resilient technologies. State Level SRFs and Team Lead would oversee the field research along with supplement with the secondary research. They would document the report, which would be reviewed and approved by the SPM IFS. Similarly, based on the field level insights block level SRFs would suggest the prospective positions for developing CHCs, these locations would be verified by the Team Lead and SPM IFS, along with VCDC Cell and finally approved by SPM Value Chain Development and SPM IFS.

- **Organising and Conducting a Block Level Stakeholder Workshop:** Based on the key findings of the regional diagnostic and study of the IFS model IGKV will conduct expert consultation workshops at each block. Block level SRFs would also join the workshops. Along with KVK and IGKV State Level Project Staff – SPM IFS, SD, VCDC would join the workshop and collect necessary insights from the field and validate the studies conducted. The workshop will help in finalization of the total number of IFS models to be developed under the project. An exhaustive workshop will be conducted involving the relevant stakeholders from the agriculture, horticulture, livestock, fisheries and allied services towards finalization of the IFS strategy for each block.

Outputs of the Regional Diagnostic Phase:

- **SoPs** encompassing the detailed processes related to conducting regional diagnostic and development of IFS model across the CHIRAAG blocks
- **Interim Report on Block Diagnostic**
- IGKV will submit a **Final Action Plan Report – Block Diagnostic Assessment and IFS Strategy Report** for promotion of the Integrated Farming Systems (IFS). This action plan would

be based on the diagnostic study taken up, stakeholder and expert consultations. The strategy report should focus on retaining the low chemical input agriculture currently practiced in the state while promoting diversification and production. The action plan report will include

- Suitable cropping systems along with crop varieties, package of practices which consider the ecological sustainability
- Additional livelihood activities like fisheries, small ruminants, piggery and other livestock etc
- Extension strategy for enhancing the natural resource management
- Recommendation on IFS Models to be adopted under the project

I.3. Preparing Village Development Plans

The preparation of Village Development Plan is the pivotal process which will inform all investments in the CHIRAAG project. The process entails two level of planning. First of it – termed as household level planning is the process of facilitating individual rural households to understand their existing resource and asset base; its quality and potential and then develop a road map/ plan for intervention to enhance the quality of life of that household (including both income enhancement and nutrition security). Second aspect is to assess village level infrastructure and investment requirement which would not only support the overall village development in terms of water security, soil erosion checks, afforestation, etc but would also support the HHs to achieve their plans. A consolidation of both these plans would culminate in a VDP.

The understanding and analysis from the Regional Diagnostics, performed in the previous stage, would feed into the VDP which in turn would be helpful for facilitating the households. It is expected that a CVDP plan will include investment for asset building (livestock for example) and infrastructure development (for e.g. - small farm pond in the medium land and orchard development with associated soil and water treatment in the upland / small scale irrigation infra) at the household level; requirement articulation for new technology and training as well as processing and marketing support; investment for nutrition security at both HH and community level as well as investments for village level infrastructure and assets creation (like community orchard, check dam on the draining line, etc)

Objective of VDP is to:

- Mobilize the community, build community consciousness about the project
- Map existing resources at the village and household level – economic and social resources
- Understand the livelihood choices and behavioural pattern of the community, especially from the perspective of nutrition
- Understand the social and cultural dynamics of the community
- Map the environmental challenges and understand the indigenous knowledge and best practices for sustainability
- Inculcate democratic decision making with the community
- Provide a platform to the community to share their concerns and perspective for the development of their own village
- Register some of the best practices in terms of livelihoods (agriculture, fisheries, agro-forestry, horticulture, livestock), nutrition, and environmental sustainability
- Enable data driven decision making, as the entire set of plans pave the way for finalizing project plan for the target population and selected geography

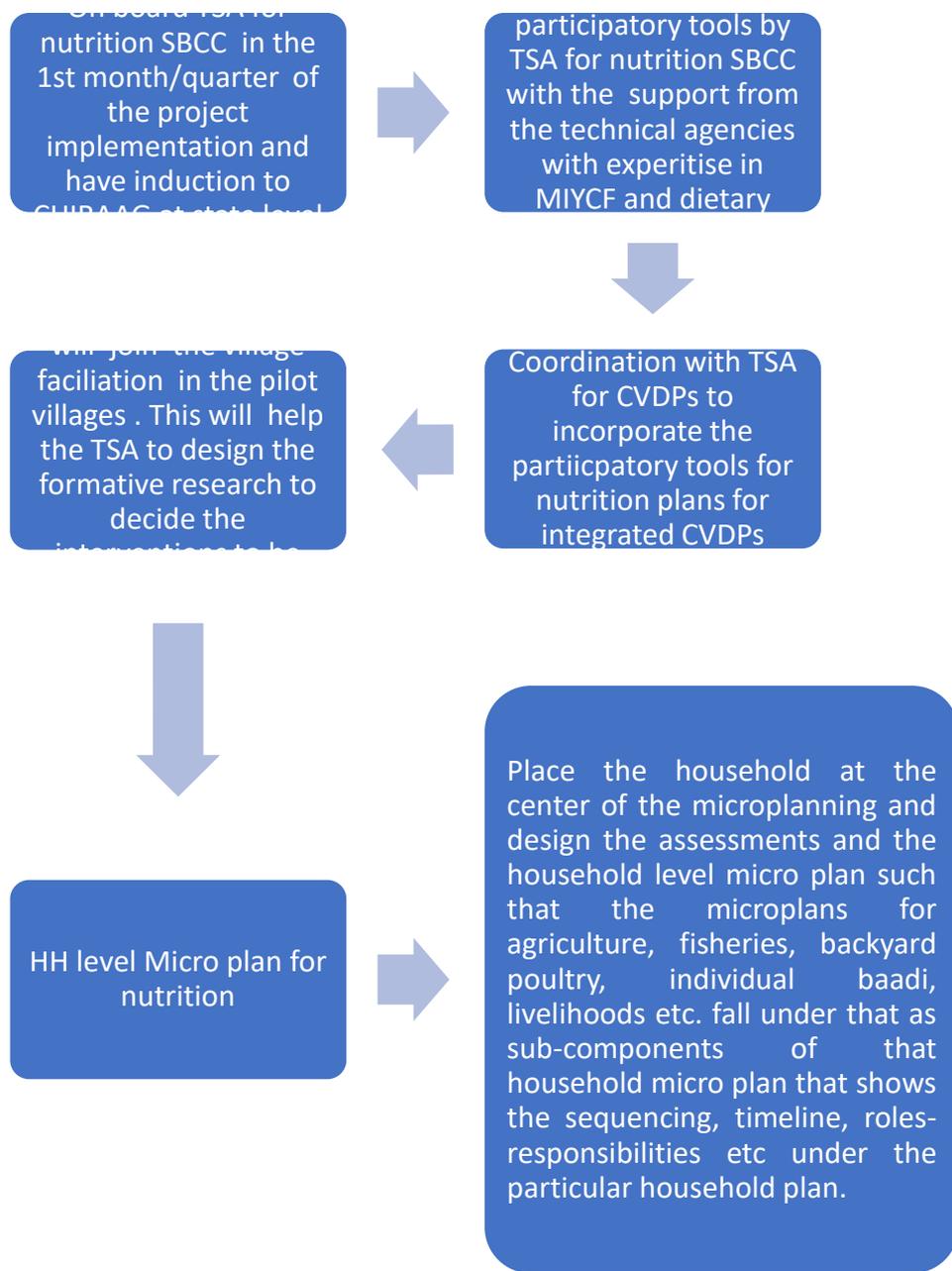
I.3.1. Process of Preparing VDPs - Planning

i. On-boarding the TSA for Preparing VDPs:

Preparing Village Development Plan through a participatory mode and democratically engaging the community along with all the stakeholders is a specialized task. It requires skills of community management and systems thinking. The project proposes to on-board Technical Support Agency having expertise in developing community plans at the grassroots level. The agency would have experience in working with the farmers, tribal communities, women in the domain of livelihoods and socio-economic development. The purpose of on-boarding such an agency is to materialize robust community-based village development planning process and capacitate the internal pool of resources for developing VDP.

SPM IFS would develop the ToR in tandem with the SPM procurement, and conduct a transparent process of hiring the TSA

Nutrition related tasks for preparation of CVDPs



Cost Table

S.NO.	INTERVENTION	Beneficiary	INPUT COST (INR)	PURPOSE OF FUND
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1	Hiring of TSA for conducting CVDP, Inst. building and CB building of PGs	Consulting Cost	185 million	Support the project staff in developing technical capability for conducting CVDP, perform pilots, develop master trainers, handholding and monitoring support for VDP Further build capacity in institution building and capacity building Provide support in developing CBNRM activity in the project
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ii. Development of VDP module, implementation strategy and template:

The TSA would work in tandem with the State Project Managers IFS, Nutrition, Social Development, Institution Building and Capacity building, Environment, and Social Development, and the respective teams for strategizing, planning and implementation of CVDP in the CHIRAAG project location.

TSA would conduct multi-stakeholder workshop to assess the scope of work and needs of the project in the context of VDP

Spearheading the VDP the TSA would broadly study the socio-economic and agro-ecological status of the project locations. Further it would develop an VDP implementation strategy delineating following aspects:

- Activities to be spearheaded
- Phasing inplan
- Number of resources to be deployed
- Schedule of the activity

The TSA would study the Regional diagnostic developed by the IGKV and KVK and develop the data collection modules. These modules would facilitate the project staff and VDP team to facilitate the discussion with the community on key project interventions. It would consist of a set of questions that would nudge the community to develop an informed livelihood plan for income enhancement and nutrition improvement

- **Natural Resource Assessment:** This will include fetching information on land use, water resource, irrigation, MFP, seasonality, FRA land availability, forest resources. For example the target area has pre-dominantly tribal population and they have multiple natural resources small ponds, they could be mobilized to cultivate small fish in the pond as IFS, based on regional diagnostic insights
- **Economic Assessment:** This will include information about the income and financial resources of the HHs. It would map the total expenditure made the community and key income sources. Further availability of food, assets, access to entitlement could be assessed the understand the economic status of the community
- **Social Assessment:** The social, cultural and behavioural aspects of the community would be assed, example WASH practices, type of consumption patterns of the community, availability of nutrition into the regular diet uptake of the community, awareness about health and hygiene. Further cultural nuances of the community would be assessed, example some of the tribal communities have the culture of Charwaha and it supports as a key resource for the management cattle, inclusion of such aspects into the project could support in strengthening the project
- **Sectoral Assessment:** This will include details on each of the key sectors that will form the part of the IFSM under CHIRAAG. The project is anchored on developing Integrated Farming System models of agriculture, horticulture, livestock, fisheries and agro-forestry. VDP would help in assessing the pre-disposition, assets, willingness and potential of the community to take up IFS initiatives in multiple sectors

- **Agriculture:** the major types of crops, the availability of agriculture land, crop-wise productivity, demand for major crops, existing community cadres and such others, existence of market. For example, the project is being implemented in the Southern area having upland, the land is suitable for millet cultivation, however still farmers cultivate paddy. Hence the insights on the agricultural practices and access to inputs and markets would be derived
- **Livestock:** Type of livestock practices, major breeds, demand for livestock, mortality of the cattle, existing community cadres. Livestock rearing is one of the key sources of alternate livelihood or ensuring income security for landless. The project would assess the current livestock rearing practices, willingness and capacity of the community. Along with these the input and output livestock market would be assessed for the target community
- **Fisheries:** Current production of fishes, demand for various fishes, key issues in fish cultivation, existing feed and input supplies and such others. Chhattisgarh hinterlands have extensive natural ponds, which are suitable for collective/individual fish cultivation. Hence the VDP would assess the resources and try to mobilize the community to take up fisheries in the agro-ecologically suited geography
- **Horticulture:** Types of crops, productivity, input procurement and production practices, income share in the HHs total income portfolio. Project envisions to develop high value crop and engage in value chain development of the same. Though small farmers are sceptical to take up high value agriculture, possibility of cluster-based horticulture development, seed production could be explored. At the same time the VDP would mobilise the community to discuss and adopt individual or community based program for nutrition enhancement
- **Sericulture:** current sericulture practices, engagement of the community on government land or forest for collection of cocoon, post-cocoon activities and processes. VDP would try to assess the number of target population associated with sericulture at any stage and understand their needs for further development
- **Non-Farm:** Infrastructure need assessment: Assessment of need for development in respect of irrigation, water management Micro Irrigation intervention, processing centers, nurseries and such others
- **Community Institutions:** This would include information on the various types and number of formal and informal groups and institutions in the village, the power dynamics. GoCG has been implementing BIHAN, the State Rural Livelihood Mission, which has transformed the social infrastructure of the community. The community in tribal areas are organized under SHG/JLG/JFMCs and hence it would be vital to understand the social thread of the community and understand how CHIRAAG can leverage and support the existing institutions, while developing its own community institutions
- **Food and Nutrition:** The planning would develop Village Level Nutrition Plans assessing the 100 days nutrition groups. Especial focus would be given to identify the adolescent girls in the village, assess the cases of malnutrition, anaemia and other nutritional deficiency
- **Climate Resilience:** Current issues and challenges related to climate change, mitigation measures and existing practices, integration of sustainability in the farm production and management practices
- **Integration of environment assessment:** Integrate key environmental issues identified under the ESMF disclosed under the project
- **Gender and Environment:** information regarding role of women in several livelihood activities and how the element of increased participation and drudgery reduction can be introduced. Moreover identify issues and challenges around local environment and ways to mitigate environment risks along with proactive actions to sustain the local environment.

Further the TSA would develop a template for conducting VDP, which would comprehensively cover the questions concerning above mentioned modules.

ICT Based tool for data capturing

The project proposes to leverage the ICT based tools for data capturing and processing. This would optimize the efforts on data collection, management, cleaning. Further leveraging ICT would enable enhanced monitoring for the VDP process

- ICT-based data capturing, and processing tool will be leveraged with an MIS-based dashboard facilitating satellite view of the progress of VDP process
- Project functionaries at the block, district and state level will be able to visualize the dashboard for progress review and monitoring on day to day basis
- Quick information processing and basic analytics will be run with an output driven approach

TSA would work in tandem with the NIC team, the TSA for MIS development, for developing the VDP data collection tool and integration with the dashboards

Participatory Vulnerability Assessment: The VDP team CHIRAAG will adopt differential strategies for social inclusion and mobilisation of all identified HHs into functionally effective and self-managed institutions (LGs), with particular focus on inclusion of vulnerable sections like tribal women, scheduled castes, scheduled tribes, LWE affected and isolated communities. The TSA as a part of its training on social mobilization will also train the CVDP team to gauge a preliminary understanding on participatory vulnerability assessment to identify the poorest, backwards and the most vulnerable amongst the targeted HHs. Following will be the broad set of activities under this:

- Providing insights on preparation for a PVA exercise
- Identifying stakeholders for the PVA exercise and briefing them on the objectives
- Developing an analytical framework through situation analysis, analysis of the causes of vulnerability, analysis of community action and capacity and drawing action from analysis.
- Deriving insights and implementing the same in the while conducting the mobilization on the field

Preparation of a joint strategy with the block and district team, tribal leaders and community representatives from LWE: This is one of the critical aspects in the entire project as it will define the ultimate uptake of all the planned interventions and inclusion of the socially backward and vulnerable sections of the targeted population. Post the general orientation meeting, special meeting will be held to strategize the social mobilization of these tribal and LWE affected HHs. The strategy will be recognizing and thus will be based on the following aspects:

- LWE areas characteristically suffer from inaccessibility (remote area due to forests, rugged mountains, inhospitable mountains, extreme climate) making the region rather excluded
- However, these areas are beset with the strength of separate social identity of its population (predominantly inhabited by tribals)
- Inaccessibility of an area inhibits economic development and causes a sense of relative deprivation among the population
- At the same time, large scale migration from these areas is impeded by the people's attachment to their ancestral lands, thereby insulating the area from social transformation
- Due to lack of the state's penetration into these inaccessible areas, the population develops a strong sense of social/ cultural identity. This in turn is very helpful to the insurgents as it provides them an opportunity to attract the target population by providing higher social control

Acknowledging the above-mentioned facts, the TSA along with the CVDP team will create the Tribal People Planning Framework (TPPF). This TPPF will form the strategy to be adopted during implementation of CVDP so as to ensure that tribal communities are informed, consulted, and mobilized to participate in the CHIRAAG activities, paying due consideration to their vulnerabilities. Further, it will form the basis of a frame work of participation, as well as management modalities, in the tribal and / or LWE areas in CHIRAAG blocks during implementation.

Prepare communication strategy to sensitize the community: Once the strategy for social mobilization has been planned, the next step will be to develop the communication strategy. This will include planning communication through different kinds of media, audio and visual, electronic as well as traditional modes. It will be followed by developing varied IEC materials for communication.

Developing relevant SOP and process protocols

- Preparation of the SoPs for the CVDP process: The TSA will be required to prepare an operational manual or a step by step guide on facilitation, data collection, management, monitoring and assessment for the CVDP process. It would also entail the roles and responsibilities of the specific stakeholders
 - The preparation of the operational manuals; including key tools to be used in the implementation of the CVDP and details on; group formation, meetings, data collection, planning based on key constraints, strength and opportunity areas in a village as well as in the HH with an underlying principle of IFS and climate sustainability, nutrition security to achieve the CHIRAAG PDO
- Preparation of SoPs for development of HH level Micro-plans and integrating them with IFS and overall project strategy detailing the following aspects
 - Agroclimatic and socio-economic profiles of the target HHs
 - Identified immediate HH needs that are to be addressed basis IFS model integrated with CHIRAAG PDO
 - Identified site-specific livelihood activities on agriculture, horticulture, livestock, fisheries and other allied activities
 - Availability of water and other natural resources
 - Nutritional practices and requirements

iii. **VDP Preparation Team Design:**

Preparing Village Development Plan would be the first and most fundamental activity of the project. Though the activity would be a regular activity and run concurrently with the project implementation, in the initial phase it would be prudent to prepare VDPs in a mission mode.

To spearhead mission mode VDP preparation the SPM IFS, Social Development, Institution Building and Capacity Building, SPM HR, SPM Value Chain Development would collectively prepare a core team. The team would be formed by pulling in resources from different project verticals – IFS, M&E, SD, IB&CB, VCDC including the state team member responsible for nutrition integration, etc. Further convergence would be sought with the expert government agencies as BIHAN, to leverage the rich pool of resources at the field level, trained on conducting VDP

At field level the VDP would be prepared by a team of 5 Community Resource Persons and 2 CCs along with other project and government officials should be part of the team supported by the TSA team member.

At the state level SPM IB CB, and APM IB CB would facilitate the convergence among CHIRAAG and BIHAN to identify BIHAN CRPs in the project location which could be trained for conducting VDP in the CHIRAAG project location.

The VDP team would also initiate the process of Likelihood Group Formation, and initial stage of microplanning and capacity building.

The SPM, and APM IB CB would design a team of resources, **Implementation Team Composition (Field Level):**

- 5 BIHAAN CRPs
- 2 Community Coordinators
- 2 Government field functionaries – Rural Agriculture and Horticulture Extension Officers

Support Team: responsible for facilitating the field teams in developing the plans, conducting village meetings and discussions

- Block Project Manager (CHIRAAG)
- 1-2 staff of TSA

Monitoring team: responsible for facilitating and monitoring the development of VDP in the field

- BPM
- TSA

- DPM
- Manager IB and CB
- SPM, and APM IB CB

Following will be the selection criteria for shortlisting the cadres:

- The cadre should have the reasonable amount of experience in working in the selected village
- The cadre should have a prior experience of conducting micro planning and/or Participatory Rural Appraisal or any such activity
- The cadre should have a basic qualification of matriculation

All the stakeholder in the project across the hierarchy layers (COO, SPMs, PMs, District and Block Level Officers) will be involved in the **preparation of about 5-6 VDP** so that diversified experience, learning and participation can be ensured.

TSA would also develop VD plans along with the field implementation team during the first phase of VDP. It would develop plans for at least 85 villages entered in the initial stage, these would act as benchmark for learning for the implementation team.

As the project would progress, VDP development would be the responsibility of the CHIRAAG community cadre and Community Coordinators in close monitoring of Block Project Manager. The project would pay honorarium to the cadres supporting in VDP preparation.

iv. Training of Project Staff and BIHAN CRP for conducting CVDP:

Once the selection is completed, the Community Coordinators (project staff) and group of shortlisted cadres will be trained by the TSA hired for providing training on social mobilization and developing VD plans. With the objective of enabling the project staff to facilitate the village development plan and discussion with the community on the project interventions following training modules would be developed:

- **Objective, purpose of CVDP:** it would entail the broad objective for conducting the VDP. It is a process similar to the Participatory Rural Appraisal, however the objective would cover how PRA needs to be tailored to fit into the planning needs of the CHIRAAG project
- **VDP/PRA tools:** Focused Group Discussion, Key Informant Interview, Transact Walk are some of the key tools used in PRA, the TSA would study the requirement of the planning in CHIRAAG and develop necessary tools for conducting VDP. These tools would be designed considering the social and cultural context of the implementation areas
- **Community mobilization and group facilitation:** The project is being implemented in the tribal dominated areas of the state. Also, the newly hired project team may not have the entire understanding of the rural, socio-economic, cultural context of the project area. Hence the TSA would design the modules for training the staff on community mobilization, group facilitation from the context of the location as well as the objective of the project. The module would entail introduction to community mobilization, team building, developing community mobilization plan, community orientation, relationship building, inviting community participation, facilitating group communication and such other aspects
- **Technical Aspect:** Introduction to VDP, CHIRAAG Concept, Process of undertaking the VDP, introduction to key modules and information collection and such others. Training will also be provided on introducing the IFS concept at the CVDP stage, its integration with the PDO and NRM as the building blocks for undertaking the CVDP process
- **VDP field plan development:** The field plans would be developed for– natural resources, agrarian assets and practices, and nutrition plan. The plans would also include formats to understand the economic, social and cultural status and context of the community. TSA would train the cadres, field functionaries and project staff to develop field plans based on the data collected from the field
- **Livelihood Group Formation:** The module would entail the process of mobilizing the community and discuss the objectives and benefit of collectivization to leverage economy of scale and receive enhanced services to improve the livelihood practices. It would also entail

the process of LG formation, setting up norms, processes and systems. Facilitating the community to elect leaders and manage the livelihood group in effective manner

TSA with the support from SPM Program Support, APM procurement, SPM, and APM IB and CB would develop the IEC material for:

- Training CRPs on VDP
- Introducing CHIRAAG and its key concepts of enhancing production systems, nutrition enhancement, climate resilience to the community
- Facilitating the community for VDP

v. Phasing nPlan:

SPM, and APM IB CB in coordination with the TSA would develop the phasing-inplan. The plan would be approved by the COO and the Project Director for field level implementation.

- There would be a 100% saturation strategy for the planning exercise
- The TSA will be responsible for directly piloting VDP across 150 villages which involves both, 15,000 HH micro plans and 150 odd village investment plans (jointly to be known as VDP)
- The villages piloted for making the larger village plans may or may not be mutually exclusive for making the HH level micro plans
- The first drive for the planning process will be done on the pilot basis and could last for 15-20 days where approximately 60 villages will be covered in the first 3 months of drive, where 10 teams each of 7-9-membered group will cover one village at a time
- These 60 villages will be selected across the three agroclimatic zones as per the CHIRAAG intervention areas; 50 villages per North and South blocks and 10 villages from the central block
- In the first drive Gothan and nearby villages of Gothan (of the 4 villages surrounding the Gothan) of the selected blocks would be covered
- The selection criteria for village in surrounding area of Gothan will be the highest score of the project priority indicators
- Since the first drive would be the pilot phase, depending upon the need the time needed per village can be kept flexible
- These pilot drives will act as an on-field training and capacity building of the CVDP team post the classroom training on the modules and will serve as the basis for undertaking CVDP for rest of the target areas. For the rest of the CVDPs, the TSA will provide the handholding and overall monitoring support to the team.
- Post the drive is completed, the learnings and experiences will be collated and the same will be incorporated for the consecutive drives

vi. Implementation of VDP:

1. Introductory meetings and first order mobilization

The VDP team would be the front face and representatives of the project in the field areas. They would conduct the first order meetings with the multiple stakeholders. BPM would be responsible to lead these meetings at the block level. As the BPM is the head of block implementation, s/he would introduce the team and the project in the location to the key stakeholders – PRI members, Block Development Officer, Gothan.

At the level of district, the DPM would be responsible to brief about the project to the District Magistrate and introduce the team. He would be responsible to coordinate with the district administration for seamless convergence and coordination for CHIRAAG initiation stage – VDP.

i. Orientation Meeting in the Village

Once all the pre-planning preparation has been completed, meeting will be organized at the Gothan level for orientation of the PRI and Gothan Committee on VDP as well as introduction to CHIRAAG. The meeting will focus on the following aspects among others:

- a) Introduction of the CHIRAAG project and its PDOs
- b) The key role of the stakeholders in the project

- c) The need for support from the members of Gothan Committee and the PRIs in the CVDP process
- d) The key outcomes from the planning process and the overall strategy for conducting the CVDP

Block Project Manager would lead the meeting along with the CVDP Field Implementation team and TSA members

ii. Orientation Meeting with the Village Residents

Once the governing stakeholders are onboarded, the VDP team and the TSA will then conduct hamlet wise meeting with the villagers on CHIRAAG and VDP. These meeting will include a more close and informal interaction with the village community by identifying their local needs, particularly of the small, marginal and tribal groups who are the target population for the project. At this stage the concept of CHIRAAG project should be seeded in the community. The principals and objective of CHIRAAG, its fundamental concepts on nutrition, IFS, community development, environmental sustainability, effective natural resource management, social inclusion, market linkages. Further the discussion shall progress towards preparing a HH level micro plans. At this stage the VDP team need to subliminally communicate the following to the village community:

- a) Responsive to the wisdom and knowledge of the community rather than showing themselves as the experts in the process
- b) Listen to farmers and respect their knowledge, experiences, opinions and perceptions, as well be receptive of their attitudes and customs
- c) Create the ambience conducive to gaining the trust of the farmers and their willingness to share their knowledge and experiences
- d) Be flexible in the scheduling of VDP activities and provide opportunities for problem-solving and learning, in response to the felt needs of farmers and their respective households and communities

iii. Meetings with existing community organizations like SHGs, VOs, JFMC, Producer Groupsetc.

The next stage will involve conducting meeting with the existing groups and community level institutions for garnering their support and pooling in their knowledge and experience in the VDP process.

All the three meeting will focus on the following aspects among others:

- A clear articulation of the fact that CHIRAAG is built around the concept of IFS with an underlying theme of climate resilience and nutrition security that together aims to achieve the PDO of income enhancement and nutrition improvement
- Emphasis on the fact that development should be seen more as a change from the bottom up than from top down so as to ensure that the village development needs drive the momentum of intervention rather than the state set objectives
- Acknowledgement to the fact the VDP will be centered around the concept of gathering information across agriculture, horticulture, livestock, fisheries, sericulture, nutrition, climate related factors and existing natural resources in the village as well as with the HHs
- Each HH in the village will have their own separate plans that would revolve around the existing resources, assets, and willingness of the farmers HH. Also, at the very beginning these plans will be fluid and could be altered based on the changing interest level of the HHs
- The development process will be supported by local institutions with village panchayats, existing community cadres, the hired TSA, community-based users' and self-help groups playing a lead role
- The fact should be communicated that it is comparatively easy to arrange technical services from outside than to bring about social involvement and participation in the development process. However, considering the fact that the planning activity needs to thrive around the strong local institutions the TSA will only be deployed to conduct planning on the pilot basis as well as to train the existing field functionaries, rather than being full time deployed. This will increase the onus and responsibility of the community members in the entire planning process

- The community will be explained and introduced to the key stakeholders involved in the entire planning process so that they know well in advance as to what extent of monitoring can be experienced during the process
- Seeking volunteers who would accompany the CVDP team while Transect Walks, and other activities for data collection and resource mapping
- Keeping the enquiry open for accommodating the questions raised by the village community

2. Information Collection

Under this step various tools will be used to collect the information across the modules that will lead to the creation of village database as a roadmap to the preparation of the VDP as well as the HH level plans. Following tools will be used for the data collection exercise

- Transects (Systematic village walks and observation)
- Informal mapping (Sketch maps drawn on site)
- Diagramming (Seasonal Calendars, flow and causal diagrams, bar charts, chapati diagrams; map showing existing features relating socio-economic, demographic, hydro-geologic, agro-climatic and land use pattern)
- Innovation assessment (scoring and ranking different actions)
- HH level survey through digital questionnaire
- Focus Group Discussions (FGDs) and Brainstorming sessions
- Key Informant Interview
- Crop Calendar
- Crop pattern, agricultural practices
- Behavioral patterns impacting nutritional and health security of the community
- Opportunity Matrix
- Case Studies

3. Social and Resource Mapping

Social Mapping will include the usage of flip charts and maps to represent the relative location of households and the distribution of different types of people (such as male, female, adult, child, landed, landless, literate, and illiterate) together with the social structure and institutions of an area.

Resource Mapping will include showing information regarding the occurrence, distribution, access to and use of resources; topography; land types, position of forest and water bodies including drainage line, human settlements; and activities of a community from the perspective of community members

The VDP team will leverage it towards the following:

- Identifying and examining relationships between a community's resources, topography, settlements, and activities
- Enabling people to picture resources and features and to show graphically the significance attached to them
- Identifying problems, possibilities, and opportunities

Participation and sustaining it: Getting the community to be interested and involved in village planning and development is the key to successful village transformation. As a result, concerted and systematic efforts needs to be continually made for all the days to mobilize the community and get the residents involved in the process – to get widespread participation. Organizing meetings at the end of each day could lead to assessment of the productivity of the planning exercise and will keep the community people accountable towards the preparation progress

4. Higher Order Meetings – Panchayat, Gothan meeting to discuss about the outcome of VDP
Once the VDP team has assessed and mapped the social and resource factors in the village, another meeting for sharing the outcome of the VDP processes. The meeting would help in juxtaposing the village maps and understanding the higher order integration of the natural resources at the Panchayat and Block level. The team would facilitate following discussions in the higher order meetings:

- Need and assessment for community watershed structure – construction and management
- Irrigation infrastructure
- assess the integrated implementation of the community livelihood models as community badi, community orchards, etc.
- assess the nutritional patterns and behaviors of the community, from the broad perspectives
- norms and social systems to assess community dynamics at the broader level

5. HH level Micro-Plans

The process of VDP would also be accompanied with the parallel drive of LG formation. Post Village level plan the VDP team would also initiate the process of LG formation. These groups would be formed with the multiple farmers engaged in diverse agrarian activities to motivate them to adapt to the IFS systems.

During VDP the project team would mobilize the community and sensitize about the project objectives, goals and plans. Accordingly, the interested households would form the Livelihood Groups for multiple purposes. It is expected that, during the initial phase, 25% of the HH would form the LG. The Livelihood Group would be formed at the hamlet level and it would be a multi-commodity group for augmenting the livelihood of the community, leveraging economy of scale. Hence for effective implementation of the IFS model and program activities it would be prudent to develop a Household Level Plans, covering the project beneficiaries. The HH plans would also bring the context of the Hamlet, in the economic, social, and cultural context, in which the beneficiary family resides. As some of the hamlets may belong to marginalized communities and others to upper caste/class, the HH plans would provide a more nuanced insight to the target HH.

Multiple World Bank and Government programs have developed the successful concept of HH micro-plans or micro-investment plans, example National Rural Livelihoods Mission. These plans help in providing a 360-degree insight of the target beneficiary and help in tailoring the program as suited for the community, and ensure the program meets the requirement of the beneficiary. CHIRAAG would leverage and build on the successful micro-plan concept.

The HH level Micro-Plan for CHIRAAG would be designed in the context of Project Development Objectives of income enhancement and improving nutrition security of the target population. It shall also integrate the context of environment and social safeguard, at the same time account for the local tribal – social, economic, cultural perspectives. Broadly it would cover following aspects:

a) Household Level Resources:

It would entail the natural resources, assets, and skills at the HH level. First, MP shall study the fixed assets the family has in terms of land, kaccha/pucca house, backyard, FRA land, agriculture machinery, etc. to understand the economic status and potential of the HH. Second, it shall entail the natural resources and assets as individual or community pond, livestock asset as – cow, goat, pig, etc.) further the quality of the assets shall also be ascertained. Third the skillset of the individuals in the household shall be registered, example knowledge of preparing vermi-compost, skill or art-work, example Bastar Art, etc.

b) Access to common resources:

As the envision to enable effective management of natural resources. The MP would ascertain the existing resources with the community, as access to forest, grazing land, community structures like ponds, check dams etc. This would developing an enhanced understanding about the community and implement the activities as per the needs of the community.

c) Livelihood Portfolio:

Poor often have multiple income sources, as the single source like agriculture is not often sustainable. Further, the project envisions to develop integrated farming system models – integrating agriculture, horticulture, livestock, fisheries and agro-forestry. At this backdrop the information on livelihood portfolio is very critical to ascertain the existing status of the community, what all livelihood activities a farmer is engaged in, and what are his assets, skills and aspirations. Accordingly it would support in project activity planning for the hamlet

d) Existing Financial Management System:

Often the financial management system of the rural community is very poor. Usually, there is no concept of formal saving or loan. More often the poor are dependent upon local money lender for credit. Further farmers do not understand the government benefits on crop insurance and its processes. Hence, the MP would ascertain the Financial Management System of the target population, it would entail, understanding their sources of income and its duration, expenditure, sources of savings, insurance and credit.

e) Existing system of buying and selling:

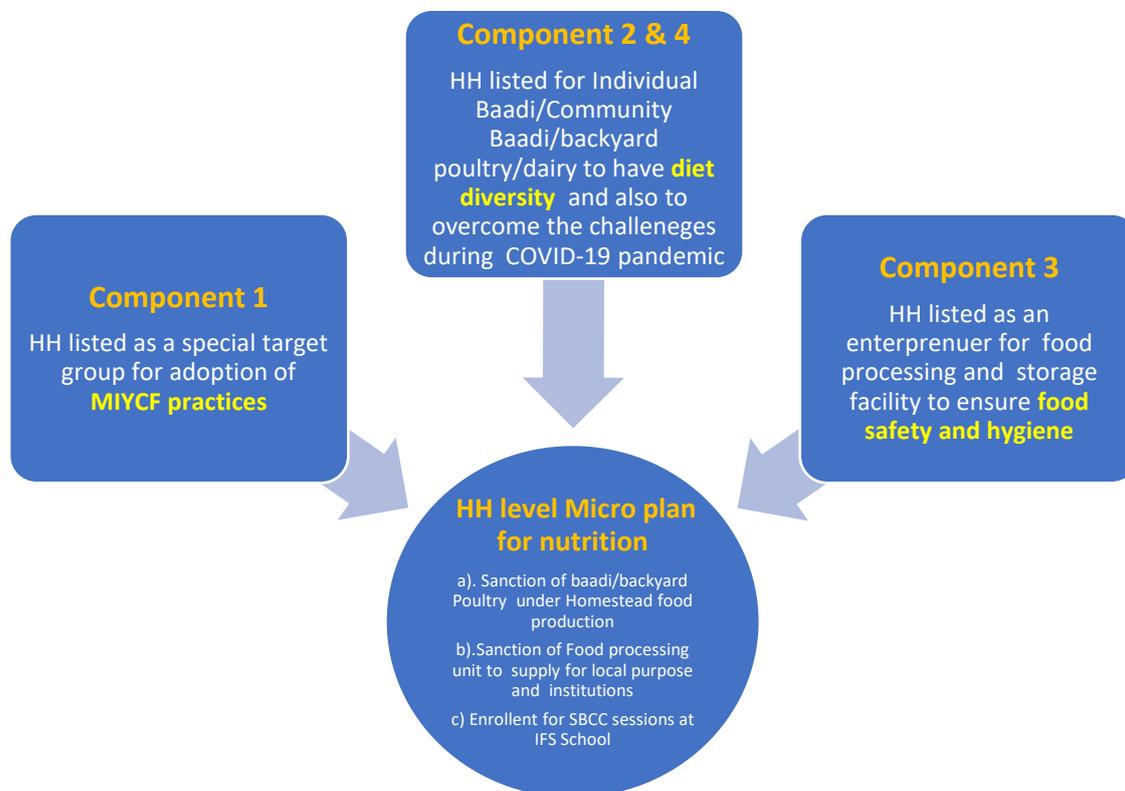
The tribal community do not often have access to formal markets for buying and selling of inputs and goods accordingly. They are usually dependent upon the local Hat Bazars, however some of the Producer Organizations in Bastar have tapped the national and international markets. Hence the MP would ascertain the sources of input access for seeds, livestock, agri-inputs etc. Further the MO would map the forward market for the farmers for the sale of agri-commodity, processed or un-processed produce, livestock produce – lac, coccon, milk, egg, meat etc. Also it would be assessed that what are the challenges that the farmer face in accessing these markets

f) Food and nutrition status:

Ensuring nutrition security is one of the most critical PDO for the project. Often the nutrition security is dependent on multiple behavioural patterns and status of awareness among the community. Hence, the MP would ascertain the current food and nutritional practices – diet diversity, breast feeding, nutrition of 1000 days target group, intake of nutrition rich produce. Further the WASH practices of the community would also be assessed as nutrition and good health are interlinked. These insights would further help in developing the Behavioural Change Communication Strategy for the project.

HH level Micro plan for nutrition

In this scenario all sectoral teams, e.g., agriculture, horticulture, poultry, fisheries, dairy and , livelihoods would engage with the household together and help develop an integrated plan



g) Crop-planning:

The MP would also ascertain the crop planning of the HH, as in the seasonality of the crops, types of crops sown, livestock development, NTFP collection practices, land development, badi development

h) Visioning exercise:

Further based on the Micro Plan a collective visioning exercise would be conducted with the Livelihood Group. The LG project staff – Community Coordinators would lead the visioning exercise and mobilize the LG to discuss and brainstorm their individual and collective developmental needs. The resources they have to fulfil their needs and what role can CHIAAG play and resources that CHIRAAG can provide to meet their needs. Further a collective visioning exercise would help in planning the project activities that can be implemented in the target LG, based on their needs and resources.

This would entail planning on land development, livestock development, enhancing the market access for inputs and outputs. Further the community could collectively discuss and develop clusters for seed production or high value agriculture, management on common property – pond, pastures, etc. Management of Forest – in terms of sustainable manager of NTFP collection. Farmer may ascertain shared resources, irrigation support for developing badi enabling nutrition security.

1.3.2. Post Planning - Consolidate the plans at the CVDP at block/district level

Organizing convergence workshop: A de-briefing session and VDP Workshop at the District Level will be organized where plans from all the blocks (in the first drive) will be presented among the key stakeholders for the project. In this stage the VDPs will be given the final face where all the key stakeholders will discuss the outcomes and possibilities and each of the VDP will resemble an IFSM in its own way.

- Prioritizing fund transfer
- Facilitate convergence among multiple government agencies for meeting the community requirements documented in the plans

The idea of consolidating the VDP at the district level is to pool the resources for integrated and holistic development of the community. The District Magistrates have been implementing multiple Government programs on field the CVDP workshop would support the DM in assessing the need of the community and provision for rationalizing the scheme implementation as the demand of the community. To give an example the community may share the need for scientific cultivation of Tassar Cocoon and post production reeling support. The DM could facilitate convergence with the Forest Department to lease out forest land to the community for cocoon production. Further support from Sericulture department could be solicited for providing technical assistance and training to the community for scientific cultivation of the cocoon on the forest land. For post-coon activities DM may assess the possibility of leveraging District Mineral Fund and establish reeling center for the community members.

CHIRAAG project is anchored in participative community-based planning. Further as the project would be implemented in the phased manner and over a period of six years, it envisions to anchor participative planning to the core of its design and implementation. This would mean the process of participative planning would be a regular activity and gradually the project staff would take up the activity. The Village Development Plans and HH plans would be updated regularly as the need may be.

The TSA will be responsible for supporting the district team in organizing a debriefing session and CVDP Workshop at the District Level where plans from all the blocks will be presented among the key stakeholders for the project.

Further the SPM, APM and PMs of: IFS, Social Development, Environment, Nutrition would join the workshop. The project managers from the district level would also participate in the workshops and BPMs and CCs should share their insights at these workshops for further process improvement.

A typical village cycle for VDP: The village level process would be initiated once the SPMU and the TSA has finalised the village phasing plan. After entering a village, it is expected that in the first year approximately 25-30% of the households would be interested to develop their micro plans, which essentially would articulate a 1-2-year plan for land-water related infrastructure and agriculture-horticulture-badi-livestock related plan. The village level INRM needs (public infrastructure) would be identified in the first year itself. Once the project work is initiated, it is envisioned that more households would come forward to develop their micro plans. Thus, by the end of second year, approximately 75-

80% of the HHs would be covered. The remaining HHs would be motivated to join in the end of third year in a particular village.

Handholding support of TSA for regular participative planning

Though the TSA would develop 150 VDP and 15,000 HH micro plans. Post the pilot, the TSA would be responsible to provide support the project staff in scaling up the planning process and developing VDPs and HH level micro plans at all the project target geographies. During the process the TSA would provide close monitoring and handholding support to the project staff and community cadres.

the TSA will closely monitor and provide continuous handholding and field level support to the staff and community cadres for undertaking the preparation of the CVDP and HH micro plans and will also incorporate the learning from the initial drives in the next sessions for better outcomes. The TSA will also take into consideration that all the learnings from the pilot plans are well incorporated in the subsequent plans to get the best outcome.

3.1.2. Community Institutional Strengthening

The project envisions to build the institutions of the poor to enable inclusive social and economic development of the target population. These institutions would become the enablers of change and allow participate in the process of development and become self-reliant. The idea to build democratic institutions with special focus on women and tribal groups. Through increased awareness and capacity building initiatives, the project will include more women, in the community institutions of CHIRAAG and facilitate active role of women members in the governance and management of these institutions.

These institutions would anchor the entire CHIRAAG program implementation. CHIRAAG would develop multiple community institutions, focused on livelihood enhancement and nutrition improvement. These institutions would be primarily formed by the farmers – formalized into farmer interest groups, livelihood groups as producer organizations, cooperatives, and Farmer Producer Organizations. These institutions would enable farmers to democratically drive economic and social development for inclusive growth and transformation.

Government of Chhattisgarh has laid down multiple measure to strengthen and empower the communities. With the visionary program of NGGB, the government has developed Gothan committees as key drives for the program at the village level. The Gothan committee constituted in each village has representation from the Government officials and Panchayati Raj Institution members. The project envisions to build a higher order committee, CHIRAAG Resource Committee, at the Panchayat level, which would work in tandem with the Gothan committee to facilitate democratic, integrated and comprehensive decision making at the Panchayat level. CRC would be an informal group, having representation from multiple community institutions for effective natural resource management.

3.1.2.1. Key Objectives of Community Institutional Strengthening

- Develop robust democratic community institutions for equitable development
- Nurturing of the community members to enabling effective management of the community institutions
- Strengthening and developing social capital at the village level, this social capital could be leveraged by any development sector project for community-based development
- Provide a robust platform to the vulnerable community members - women, SC, ST community, PVTGs, making their opinion heard and acknowledged, enabling inclusive development
- Capacitating the community to take up the agency of development, participate actively in the decision making process and development of their villages

3.1.2.2. Key Principles



Activities to be spearheaded:

i. LG Formation

An LG is a group of producers/collectors of agriculture, allied and agro-forestry commodities, engaged in production of multiple commodities in a village, who come together for productivity enhancement, aggregation, primary level value addition, and other collective actions. The membership size would range between 30 and 200.

Livelihood Group would be developed at the village level for spearheading the production interventions of the project in the intervention areas. One Livelihood Group would be formed at each village. These groups would be a collective of all the producers in the project location – village, practicing agriculture/horticulture/fisheries/sericulture/livestock through the support of project.

CHIRAAG is anchored on the concept of enabling the community to drive the change. The idea of formation of livelihood group supports the objective of CHIRAAG, as it would act as an enabling platform for the community – to collectivize themselves and leverage of economy of the scale and collective support for fostering production systems in the village.

The **unit of Livelihood group would be village** as it is the smallest intervention unit of the project. Further it would be practical to collectivize the farmers at the village level, as the demand, agro-ecological conditions and socio-ecological conditions of the village would have less variance.

To summarize the project would promote one multi-commodity livelihood group in each village, which would be a collective of farmers, working with CHIRAAG, engaged in diverse production activities.

Further for the operational effectiveness, LG would have **multiple sub-groups**, the criteria for formation of these sub-groups would be **hamlet-based - geographical proximity – 15-20 farmers living nearby (may be engaged in diverse production activities)**, collectivized to form the group. However, for the specialized production systems, example community orchard – **common activity-based sub-groups would also be formed.**

Objective of LG Formation:

- Leveraging the advantage of economy of scale
- Production planning, adaption to scientific production techniques, quality management
- Bulk procurement of inputs at a lesser cost
- Collective collection and storage of agroforestry produce
- Access to better production techniques and the latest technological innovations
- Utilize common group infrastructure
- Linkage with technical experts and business development services
- Better access to finance through convergences and bank linkages
- Aggregation of produce thereby ensuring better market prices
- Better access to markets

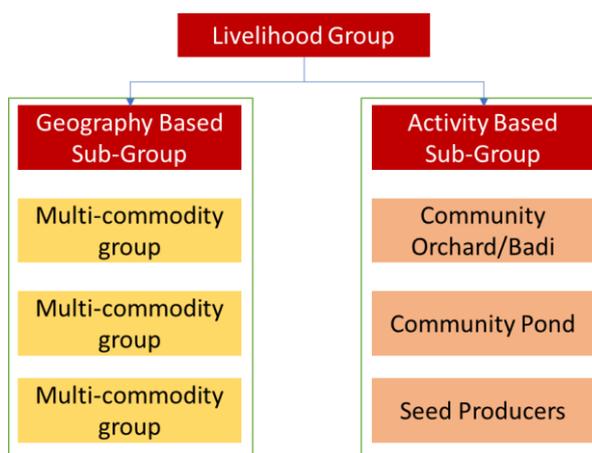
a. Guidelines for Livelihood Group (LG):

Membership Criteria for Livelihood Groups:

Any producer/collectors of agriculture allied and agroforestry commodities residing in the CHIRAAG intervention village could be a part of the collective. Farmers willing to upgrade their production system, practices and want to take benefit of the project activities would be motivated to join LG. Priority would be given to the small and marginal farmers, and producers from SC/ST community, women. Further there would not be any discrimination based on caste, religion or any other reason.

Organizational Structure:

The membership size for LGs could be a minimum of 30 and a maximum of 200. Each PG will have subgroups at the hamlet level with a membership size of 10 to 20 each. Husband and wife can be part of a group, however, only one would be able to avail loan/ grant benefit from the LG at one time. These subgroups are formed to ensure transparency and participation of members in the activities of the group. A household can avail a maximum of two grants for two different activity in the entire project time. These subgroups should ideally be located within the same hamlet in close proximity. There would be two categories of sub-groups:



(i) Hamlet-based

- The target beneficiaries living in the same hamlet/ close proximity can form a hamlet-based sub-group
- These farmers/producers could be engaged in multiple kind of livelihood activities
- These would be able to avail the benefit of maximum two activities supported by the CHIRAAG project
- This would be a small sub-set of Livelihood Group, formed for ensuring that farmers can avail the CHIRAAG benefit in their proximity
- The proximity would also support the farmers in saving time and organize meetings based on their needs/time feasibility

(ii) Common Interest

- Community level collective production intervention, example – community badi, pond, seed production, orchard development
 - Producers of same interest/livelihood activity would form the group
 - The idea for specialized groups is to serve the group in a focused manner to serve the demands of the intervention. However, the same of set of farmers may be engaged in additional production activity.
 - The groups members can individually able to avail the benefit of maximum two activities supported by the CHIRAAG
- The subgroups would constituted by the individual producer/farmer, the members would **elect three Office Bearers (President, Secretary, Treasurer)** to represent their group at the village’s LG
 - To ensure social inclusion at least 1/3 members in the OB should be from the vulnerable social communities like SC/ST – especially PVTGs, differently-abled, and women
 - These Executive Committee members would lead the sub-groups and facilitate in effective implementation of CHIRAAG activities in the hamlet.
 - Further **these three Office Bearers from each sub-group would form the Executive Committee** of the Livelihood Group
 - All the **individual members of the sub-group** would form the **General Body of the Livelihood Group**

- The Executive Committee, elected representatives from the sub-groups, would **elect the Board of Directors of the Livelihood Group**, including the Office Bearers(the three representatives – President, Secretary, Treasurer)
- To ensure that the vulnerable social groups are included, the **LG Board of Directors should have a minimum representation of (i) at least 1/3rd members from the vulnerable social communities** like SC/ST – especially PVTGs, differently-abled, and women, or **(ii) at least 2 members should be women and 2 should be from SC/ST community** (one ST women would satisfy both the criteria) – **whichever is higher**
- The tenure **of the Board of Directors of the Livelihood Groups** would be for two year, following the initial two years, each year elections would be conducted to replace one of the leaders.
- The **Executive Committee shall meet at least once each month**. The General Body should meet once in 6 months with a quorum of at least 2/3rd members.
- **Office Bearers:** There will be three office-bearers, namely, President, Secretary, and the Treasurer, along with members from the subcommittees. The roles and responsibilities of the office bearers is as follows:
 - **President:** The president would be the representative of the Livelihood Group. The responsibility of the President would be to ensure that the program activities are implemented effectively, in equitable manner. There should be no discrimination based on gender, caste or class. Further the implementation should be seamless and community participation should be ensured. The president would represent the group in the CRC and share the concerns in a transparent manner.
 - **Secretary:** The role of Secretary would be to assist the president in seamless operation and management of the LG. It would support in robust book-keeping and management of the LG. S/he shall ensure that the meeting is conducted in timely manner, further ensure that the community is participating effectively. S/he should coordinate with the project staff for any support or facilitation.
 - **Treasurer:** The responsibility of the treasurer would be to ensure that the project funds/assets provided for support are leveraged in an effective manner. The treasurer would be responsible for the fund management for the LG
- **Social and Environment Safeguard Committee:** The committee would be formed based on the requirement often geographical area. The committee would be responsible to ensure equitable participation of the most vulnerable members of the LG and general body. The committee would ensure that the voices of marginalized are heard and they are the first ones to receive the benefit of the CHIRAAG activities. Further it would ensure that the activities do not negatively affect the cultural aspects of the community. While ensuring the effective implementation of water resource management and other natural resource management activities, it should ensure that it is not affecting the local flora and fauna of the region. In case of any negative impact on the social or environmental aspects the committee shall flag it to the EC and take support from the project team and experts to resolve the issue
- **Functional Sub-committees:** The LG would also have Functional Sub Committees undertaking certain specialized roles for effective management and support of all the LG groups and farmers. Each Functional Subcommittee will comprise of 2 members selected by the EC members; following functional sub-committees would be formed:
 - **Procurement Committee:** would be responsible for facilitating community level procurement for the necessary commodities required for the production activities of various sub-groups. The procurement of the goods would be done as per the Community Procurement Manual designed by the project. Further for procurement of any specific commodity for the particular production the producers engaged in the specific activity would also be engaged. To give an example, for procurement of the chicks from the FPO, the designated member from poultry group would work with the LG procurement committee
 - **Market Linkage Committee:** would be responsible for assessing the input needs of the individual producers and would aggregate them to prepare an input procurement plan. They should act as a liaison between the group and the FPO /market players for aggregation/value addition/marketing

of produce. The groups would in tandem with the Krishi Mitra, CC and Value Chain Development Officer at the block level

- **FM and Monitoring Committee:** would take the responsibility of overseeing the activities and functioning of the subgroups. They would also facilitate the formulation of an activity plan; the group would facilitate the formation of Annual Action Plan for the LG and ensure monthly monitoring with the help of Krishi Mitra and CC. Along with effective monitoring the committee would also be responsible for ensuring financial inclusion and management for the LG. Example if the LG wants to take an additional livelihood activity or mango processing and it required external funding support for the same, the committee shall coordinate with the project staff for enabling necessary financial linkages

b. **LG Formation, Nurturing and Capacity Building Process:**

1. **Pre-planning Stage**

- TSA on-boarded for preparing the Village Development Plans would be responsible for formation LG and CRC. It would also train the project staff on the group formation and provide handholding support. Further the TSA would conduct training and capacity building of the LGs and CRCs. At the same time it would train the project staff and develop ToTs for further imparting the training to the LGs and CRCs for management
- The SPM, and APM Institution Building and Capacity Building would develop the LG formation strategy in tandem with the TSA
- TSA would support SPM, and APM Institution Building and Capacity building for drafting the policy note for LG formation
- TSA would develop training modules for training the project staff on community mobilization, LG formation, and nurturing the LG as well as develop the LG meeting protocol
- During the first quarter of the project initiation the TSA would train the project staff and CDVP implementation team on LG formation
- CVDP implementation group form the LG post developing the village level plans

ii. **Planning Stage**

Concept Sharing: During the CVDP planning, at the time of discussing the village level developmental plans at the Gram Sabha, the CRP team would introduce the idea of LG formation in the Gram Sabha. Further the CRP would gradually mobilize the farmers in the hamlets to form a Livelihood Sub-Group.

Focused Group Discussion with the Producers: TSA would facilitate the FGD with the producers to assess the individual agricultural practices and cropping pattern. the major objective of LG formation is to propel the community towards adaption of IFS models. Thus, the FGD would support in assessing the community needs and motivating them to join LG.

iii. **Group Formation (LG and Sub-group)**

The TSA would mobilize the community for the formation of LG and Sub-groups at the village and hamlet level. TSA would work in tandem with the Community Coordinators, BPM for the group formation. The Manager IC-CB at district and State Level would regularly visit field to ensure that the group formation process is effectively followed and ensure the quality of the groups formed.

During the initial pilot phase, the TSA would itself visit the field to form the groups and gradually, it would train the project staff, community coordinators, develop community cadres for the group formation and nurturing.

The TSA and CC would kindle the discussion in the LG and the respective sub-groups around:

- Decision on criteria for group membership
- List of the key activities and criteria to be followed for acting as the multi-commodity producer group

- The purpose, methods of operation and benefits of groups as well as possible enterprises/activities
- Election of office bearers as leaders and signatories to open the bank account that will have funds for CHIRAAG and the formality for the same will be initiated
- Formation of executive committee and a general body along with designations like President, Secretary Treasurer etc.
- Determination of the rotationality of leadership (at least 2 years)
- Set up norms for meeting frequency, attendance, place, time, maintenance of minutes and such others; at least one meeting a month and minimum 12 meetings
- Transparency and democratic functioning of the group
- Maintain set of records relating to their financial transactions, membership register, minutes book etc.
- Admission/Removal/Resignation of members; along with a system of Grievance Redressal Mechanism

CCs would be responsible to conduct the initial meetings of the LG and sub-groups. Provide handholding support to the group till it becomes self-reliant in management of the group activities.

First meeting of the LG meeting and norm setting: Post the formation of LG, the first meeting will be held with the following key agendas in place:

- The CVDP team will facilitate the discussion on formation of various sub-groups within the LG
- The meeting will discuss on the formation of various committees with the LG; The governing body and the general body of members; nominations and discussions regarding the same will be held
- Key designations based on the prior discussion while the formation will be assigned

iv. **Micro Planning**

Hamlet level meetings with LG members for HH level Micro Planning: The individual HH level plans would be developed underpinned on the IFS strategy in CHIRAAG. The HHs will be given the option to choose at least 2-3 (indicative) activities from the total portfolio of CHIRAAG interventions. The CVDP team will brief the members of the operational modalities for a particular intervention and the details of implementation will be shared in the later stage.

These micro-plans would be developed by the TSA, CCs and community cadres. During the initial phases TSA would develop the micro-plans, then it would train the project staff and cadres for preparing these plans. As micro-planning would be a regular process, it would be gradually developed by the Community Cadres.

The details are covered in the section – I.3.1, (vi), 5 of the PIP – Microplanning

v. **Training and Capacity Building and LG Nurturing Plan**

TSA would work in tandem with the SPM, and APM IB CB and VCDC to develop the training modules for LG. The modules would be designed from two-pronged perspectives, one to develop ToT within the project team for capacitating the LG, and second the set of modules for training the LG members. The detail of LG Training is present in the later section.

The details of the training and capacity building is covered in the later sections

vi. **Post first round of VDP**

After the first round of VDP is complete the TSA and the project team at the block level would be responsible for the following

- Nurturing of LGs including mobilization of new members in LG
- Micro planning for these new members
- Planning for different activities of Chiraag
- Monitoring implementation of different activities of chiraag
- Production planning at the LG level
- Production plan execution

- Processing of commodity
- Ensuring food and nutrition security through various intervention model including BCC
- Regular monitoring of basic outcome indicators
- Ensuring linkage with CRC and GC
- INRM work monitoring
- Sorting out issues of water user group that may arise

2. CRC Formation, Nurturing and Capacity Building

CHIRAAG Resource Committee would be a higher order community group, formed to facilitate natural resource management - planning and execution at Panchayat level (over 2-3 villages in the catchment of a particular GC). It would be a representative body of multiple community institutions functional at the village level. This would be an informal agency and would not have any fiduciary or legal power.

CHIRAAG envisions to develop self-sustainable community driven models implementing development solutions for income enhancement and nutritional improvement. Government of Chhattisgarh has implemented visionary scheme of NGGB, for developing integrated model of agriculture and livelihood improvement. For driving effective implementation of NGGB, Gothan committees have been developed at the village level. These committees have inclusive community representation along with Panchayati Raj Institutions. Further the Panchayati Raj and Rural Development Department of the state has been spearheading State Rural Livelihoods Mission with the objective of women empowerment, financial inclusion and livelihood enhancement of the communities. NRLM has developed multiple women Self-Help Groups and Village Organizations. These organizations act as institutional platform for implementation of government programs for rural development.

All these institutions are at village level, however, for implementation of natural resource management plans the need is felt for a higher order organization which could integrate all these community-based institutions and lead to collective planning at the Panchayat level. With the vision to enable higher order management of natural resources CHIRAAG envision to integrate and work in tandem with Gothan Committee, SRLM SHGs and VOs and other community-based institutions under CHIRAAG Resource Committee. The institution would act as a platform for higher order planning, execution, management and monitoring of the natural resource management activities of the project.

A. Core Values of CIRAAG Resource Centre and CHIRAAG Resource Centre Committee

- It would be apolitical, inclusive, democratic organization for enabling village development
- It would not hold any fiduciary or legal power
- Maintain transparency in all operations
- Empathy towards the marginalized communities and pollution of the village
- Develop participative planning, implementation and management as the core of the operations

B. Objective of the CRCC

- To bridge the linkage between Gothan Committee and the village level organisations like LG
- To create a platform for all different type of community organizations at a GP level which take forward the CGIRAAG agenda
- Enable participative natural resource management for sustainable development
- Improve nutritional levels of the community through concerted interventions – nutrition supportive production systems, farm diversification, animal husbandry and fisheries
- Facilitate behavioural change and communication in the village to improve nutritional intake of the community
- Enhance market linkages through leveraging private sector partnerships
- Promote agri-rural based entrepreneurship and create rural employment opportunities

C. Formation of CRC

- The TSA would work in tandem with the SPM, and APM Institution Building and Capacity Building would develop the SOP for CRC formation
- It would design the policy draft and detailed guidelines for CRC formation and effective management, keeping in view of the core principals and objectives of the CRC
- It would develop the CRC formation plan, phasing in strategy
- It would conduct pilot- develop CRC on ground, review the pilot feedback and update the concept design of CRC formation and training
- It would develop a core team of resources, project staff and community cadres which would lead the CRC formation at the field level
- Further it would train the project staff and community cadres for formation and development of the CRC
- Manager IB-CB at the district level would provide the necessary support to the TSA for formation of CRC
- CC and community cadres would be responsible for the formation of CRC in the project, BPM would monitor the process and check the quality
- Manager IB-CB would monitor the progress of CRC formation its functioning and quality at various villages
- TSA would also develop a framework to measure the quality of the CRC and grade them accordingly. The grade of a CRC would represent the maturity of the CRC at various levels – financial maturity, social inclusion, livelihood management, transparency in procurement, effective regular operations
- TSA, and project staff would be responsible for training and capacity building of the CRC. Further CRCs would be regularly graded, which would help the project staff in regular monitoring of the CRC and accordingly nurture the CRC based on their required as per the grade
 - **Community mobilization for CRC Formation:** The TSA will be responsible for mobilizing people from the LG, VOs/SHGs, JFMCs, WUGs and any other types of committees available in the village. In tandem with SPM IB & CB, the TSA will design a suitable mobilization strategy keeping the vision and core values behind the CRC formation.
 - **Aggregation into groups:** Post a first level mobilization is achieved, the TSA will begin aggregating the interested people who are willing to become the part of the representative group. The TSA will organize and conduct meetings to clearly communicate the broad roles and responsibilities of the CRC, communicating the core values and key objectives
 - **Facilitate leadership selection:** TSA would mobilize the CRC for selection of group leaders as per the defined guidelines and set-up by-laws and committee management guidelines

Committee: CRC would have a Water Resource Management Committee, responsible for monitoring and management of CBNR activities

- **Water Resource Management:** Water Resource Management Committee would be formed based on the requirement often geographical area. These committees would be responsible for the management of the community water structures and operationalize the cultivation of fish in the pond. While ensuring the effective implementation of water resource management and other natural resource management activities, it should ensure that it is not affecting the local flora and fauna of the region. In case of any negative impact on the social or environmental aspects the committee shall flag it to the EC and take support from the project team and experts to resolve the issue

D. Guideline for constitution of CRC

CRC would be an informal agency, formed over 2-3 villages, constituted to enable representation from all the sections of the society. The agency would bring together the leaders and representatives of all the community-based institutions in the village. It would be formed at the Panchayat level. The committee would be constituted considering the unique socio-cultural and economic landscape of the

intervention area. This means that it would ensure larger representation from the vulnerable section of the village – PVTGs, SC/CT, women. CRCC would be constituted and managed under following guidelines:

- It would be developed to facilitate natural resource management and infrastructure of public goods activities to be implemented by the project
- It would have representation from all the community-based institutions in the CHIRAAG project location – Village Organizations, SHGs promoted by WCD, Joint Forest Committee, SHGs promoted by NGOs and other institutions like NABARD. Leaders of these institutions would participate in CRC meeting
- The committee would have representation from the Livelihood group of CHIRAAG
- Gothan committee would also nominate members to participate in CRC
- Sarpanch/Panch from the Panchayati Raj Institution would also be part of CRC, however they would be the non-voting members of the CRC
- Members of all the form of community institutions would be part of CHIRAAG as general body member
- Representatives from the community institutions (preferably office bearers) would be democratically nominated to participate in CRC as Executive Committee member
- CRC would be a democratic institution; the members of the CRC would elect two leaders for facilitating the group meeting and managing the committee. These representatives would be nominated by the CRC committee and elected through a democratic election process
- Selection of Office Bearers would occur once every two year to facilitate leadership rotation
- The Executive Committee members should be a vocal person, having leadership potential and motivated to work for solving the challenges of villages. S/he should not be a bank defaulter, if s/he is part of SHG and the SHG has defaulter member, its leaders/representatives could be the member of Executive Committee but cannot hold position as Office Bearer, unless the loan of the group is repaid
- Fundamental principal of CRC is to promote the vulnerable and marginal section of the society, hence at the time of representative selection it should be ensured that only the non-political members hold the position of managing body
- CRC would have around 18 member representatives
- The committee should have equal participation of women, tribal communities, at least PVTGs. There would be 30% participation of women, 60% participation of tribal, a women tribal beneficiary would satisfy both the conditions, PVTG would be included on priority, wherever applicable
- The tentative constitution of CRC would be as follows:

SN	Member	Designation	Committee	Number of seats
1	CRC nominated and approved responsible citizen/farmer	President	Group Leader	1
2	CRC nominated and approved responsible citizen/farmer	Secretary	Group Leader	1
3	Representative from Livelihood Group (3 LGs, 2 representatives from each)	Member	Executive Committee	6
4	Representative from VO (3 VOs, 1 representative from each) In case VO is not present, 1 representative from each SHG may come	Member	Executive Committee	3
5	Representatives from JFMC (3 JFMC, 1 representative from each)	Member	Executive Committee	3
6	PRI Representative	Member	Executive Committee	1
7	Representative from any other type of community institution (JLG, etc.) (3 groups, 1 representative from each)	Member	Executive Committee	3
	Total			18

Roles and Responsibility of Executive Committee

- **Planning:**
 - The committee would be responsible to support CVDP team in developing Natural Resource Assessment and Management Plan for the Panchayat. It would support in integrating CHIRAAG Village Development Plans across panchayats and facilitate higher order planning for Integrated Farming Systems. To give an example, certain livelihood models such as Community Orchard and Badi could entail farmers across villages, hence for effective implementation of such community livelihood models across villages CRC would provide support. It would facilitate farmers across the village boundaries to take participate in collective livelihood activities
 - The most critical function would be to work in tandem with the Gothan committee, as Gothan committee would be implementing watershed/INRM projects. CRC would enable integration among the water use committee and Gothan committee for collective management of the natural resources
- **Implementation Support:**
 - The committee would support in the implementation of integrated farming systems for landscape development
 - It would work in close coordination with other rural committees – Gothan, Livelihood Groups to promote inclusive project implementation, and convergence
- **Convergence and collaboration**
 - As the committee has representatives from multiple village level committees, elected village representatives, it would support in forging sustainable collaboration for project implementation
 - Leaders would ensure that convergence is achieved at the time of project activity planning and implementation

E. Training, Capacity Building, and Nurturing of CRC and LGs

LGs and CRCs are the foundations of CHIRAAG implementation on field. Developing robust communitybased institutions is paramount for the successful implementation of the project and achievement of the PDOs. Further post-project closure these institutions would continue the activities and hence it is critical to nurture them effectively to ensure post-project sustainability.

TSA would lead the training and capacity building of the LGs and CRCs. Further it would train and build the capacity of the project resources for LG, CRC formation and nurturing.

TSA would work in tandem with the SPM IB-CB for developing multiple training modules. Roles and Responsibilities of the project staff and TSA would be:

- **Develop SOP and process protocol for LG-CRC promotion and nurturing:**
 - The TSA will be responsible for drafting the operational manual/ SoPs for LG formation and LG nurturing.
 - These operational manuals would be designed in tandem with the SPM and APM IB-CB and further PE IB-CB would provide necessary support for designing the modules. The field officers at the district level would provide necessary insights for the development of the modules
 - The TSA along with PE IB-CB will develop appropriate book-keeping manual that would include among other fund flow system, procurement method, financial transactions, marketing arrangements leading to the establishment of a well-defined accountability system
 - The TSA and PE IB-CB would also develop the system of recording and monitoring of activities implemented in the project area and the progress of those activities
 - Facilitate in the formation of the appropriate sub committees for effective management of the LG activities

- **Develop SoPs and Operational guidelines for the CRC:** The TSA would work in tandem with SPM IB & CB, to design the guidelines for the overall formation and nurturing as well as in maintaining the relationship of it with LGs and the GC.
- **Develop relevant training module for CRC and LG type of organisations:** The TSA along with SPM, APM, PE IB-CB will be responsible for developing relevant training modules across various themes, including formation and subjects related to the operationalization of the institutions. TSA would work in **tandem with the SPM, and APM IB CB and VCDC to develop the training modules for LG and CRC**. The modules would be designed from two-pronged perspectives, **one to develop ToT within the project team** for capacitating the LG and CRC, and second the **set of modules for training the LG and CRC members**
 - **Training Module on Formation, Governance, Financial Management of LGs:** The module would entail the process of mobilizing the community and discuss the objectives and benefit of collectivization to leverage economy of scale and receive enhanced services to improve the livelihood practices. The modules will detail the process of LG formation, setting up norms, processes and systems, facilitating the community to elect leaders and effectively manage the livelihood group, governance structure of the LGs, training on funds flow and overall financial management of the LGs. Further, the TSA would develop modules on financial management for the LGs that will include sub-modules on the following – bookkeeping, bank account opening, leveraging bank credit and micro-financing
 - **Training Module on Formation, Governance and Management of CRCs:** The TSA in tandem with the SPM, APM and PE IB-CB will be responsible for designing modules on formation, structure and overall management of the CRC. The modules will detail the process of CRC formation, setting up norms, processes and systems, facilitating the community to elect leaders and effectively manage the livelihood group, governance structure of the CRCs. Further, the TSA would develop modules on financial management for the CRCs that will include sub-modules on the following – bookkeeping, bank account opening, leveraging bank credit and micro-financing
 - **Preparation of a Training Schedule:** The TSA will be responsible for scheduling all the trainings to be delivered on the ToT mechanism, alongside preparation of the modules.
- **Develop IEC material and training tools:**
 - A generic material for CHIRAAG project information dissemination (short video/ flip charts/ flex)
 - IEC material for nurturing of LG-CRC_GC. Apart from short videos, flexs, flip charts, the TSA should also plan for new generation pedagogy like continuous online learning, etc, interactive games, etc
- **Conducting Training on the Training of Trainers (ToT) Model for project staff and CHIRAAG cadres**
 - The TSA in close coordination will the SPM and APM IB-CB, will deliver training to project staff (state, district, block) as well as the community cadres on
 - Formation and nurturing of LG
 - Formation and nurturing of CRC
 - Nurturing of GC
 - All trainings would be done in close association of the state and district team and the infrastructure of KVK to be leveraged for training purposes.
- **Piloting LG and CRC promotion and nurturing**
 - **Piloting nurturing of LGs and CRCs:** The initiative to be piloted with 150 LGs. TSA in close coordination with PE IB-CB, District Manager IB-CB, BPM, CC would be responsible to conduct these pilots on field

- Facilitating the Concept Sharing: During the CVDP planning, at the time of discussing the village level developmental plans at the Gram Sabha, the TSA along with the BPM, CC, CRP team would introduce the idea of LG and CRC formation in the Gram Sabha. Further the CRP would gradually mobilize the farmers in the hamlets to form a Livelihood Sub-Group.
 - During the first quarter of the project initiation the TSA would train the project staff and CDVP implementation team on LG and CRC formation
 - The TSA along with APM and PE IB-CB will develop the SoPs and assorted operational manual for the group formation and will deliver trainings to the LGs
 - Also, during the time of LG and CRC formation, the TSA, BPM, CC would facilitate in the selection of leaders and collective visioning to set-up LG and CRC by-laws and will facilitate other formation activities such as; meetings, formation of executive committee and a general body along with designations like President, Secretary Treasurer, discuss and decide on the aspects of Admission/Removal/Resignation of members; along with a system of Grievance Redressal Mechanism and such others.
 - Further the TSA would roll-out initial phase of training and capacity building to the CRC and LGs
 - Gradually the District Manager, BPM, CC would impart training to the CRCs and LGs
- **Handholding of project staff and community cadres in promotion and nurturing of LG-CRC:** After piloting the stipulated number of LGs, and CRCs the TSA will be provide a continuous on-ground support and handholding to these institutions in their promotion and nurturing activities, along with close monitoring and supervision.

F. Nurturing of GCs

The project fundamentally targets to increase rural household income generation and nutrition intake through various Behavioural Change Communication Strategies, with a special focus on the tribal population that accounts for 33% of the total population in the state. The project will mobilize the village communities in 'livelihood groups' (LG), strengthen the existing *Gothans* by promoting CHIRAAG Resource Centres (CRC). It is worth to be noted that the CRC is an extension of the Gothan Committee. Multiple project initiatives and activities are closely anchored and would be implemented through the Gothan Committee. Hence it is critical to enhance the capacity of these state promoted community-based institutions for sustainable development of the CHIRAAG target area and beneficiaries.

- The TSA along with the SPM, and APM, IB-CB will be responsible for designing an overall strategy for the Gothan committee for integration and convergence with CRCs and other project activities related to monitoring and supervision.
- The TSA in convergence with the PE IB-CB will develop training modules on training the members of the GCs on their key roles, responsibilities with regards to the CHIRAAG, their roles towards the CRCs and such others. For instance, basis the regional diagnostic study if a custom hiring center can be established at Gothan or nearing Gothan, the relevant training modules will need to be designed accordingly for delivery of training to the GCs towards management of these centers.
- The training modules shall cover the topics of integrated and community-based natural resource management, effective convergence with multiple community-based institutions for social and economic upliftment of the Panchayat
- Further TSA and SPM, APM, PE – IB-CB would train the District Manager IB-CB, BPM, CC and community cadres for imparting necessary training to the GCs for its nurturing.
- Post-piloting of the training module by the TSA, it would be the responsibility of BPM and CC to provide regular nurturing and handholding support to the GCs

3. Cadre On-boarding and Management

Facilitating robust implementation of the program, the project proposes to develop a pool of resources as community cadres. The objective of developing the cadre is to empower the community and develop

community leaders to champion the project. The carders would facilitate the implementation of the project at the village level and support in management of the community institutions.

Community Cadres would be staff of the respective community institutions – FPO/LG/CRC and their honorarium would be paid through FPO/LG/CRC. Further post-project closure the respective FPO and LG would make a decision on retention of the cadre and provision to pay the cadre honorarium through the profitability generated through livelihood activities.

To ensure inclusion of tribal communities **more than 70% of the cadres will be from tribal community** from the same village.

The selection of these cadres would be done by the respective community institutions- FPO/LG/CRC. The process would be as follow:

- The respective Executive Committee of the LG/CRC/FPO would identify suitable candidates for the respective position, based on the defined eligibility criteria
- Further CC would facilitate the LG/CRC/FPO to conduct exam and interview of the potential candidates
- The results would be discussed with the EC members of the LG/CRC/FPO, based on the eligibility and selection criteria the LG/CRC EC would finalize and select the candidate
- The FPO/LG/CRC-EC, with due facilitation from the BPIU will decide the remuneration and other terms of the cadre

Following cadres would be developed at the village level:

Master Book Keeper

Master book-keeper would be a paid resource of LG and CRC. It would be paid on incentive basis and would be responsible for the management and maintenance of the books of records for the CHIRAAG community institutions – LG, CRC, Sub-Committees of LG

Appointment & Training

- The Master Book Keeper would be at least a Higher Secondary educated candidate
- S/he should be good in calculation and analytical skills
- The LG-EC may engage Master book keeper cum auditor, preferably a women member of community-institution, to maintain day to day LG office accounts and financial statements.
- These statements and records could be produced on a regular basis to the monitoring committee/CC for monitoring the financial health of the institute. Further this would help in fund management for LG, CRC activities
- The LG-EC will have the right to remove the Master book-keeper from its services for reasons it deems enough, including financial misappropriation, poor performance, or any other reasons deemed to adversely affect the functioning of the LG & related institutions
- The appointment, removal, remuneration, and other terms of the master bookkeeper should be validated by the LG-EC
- The PE IB-CB along with the TSA for VDP and Institution Building and Capacity Building would develop the training modules for the Master Book-keeper
- TSA and PE-IB-CB would impart training to the book-keeper for book-keeping
- Further the TSA and PE-IB-CB would develop ToTs in the project to deliver the book-keeping trainings

Roles

- The master bookkeeper would maintain the LG's books of account. This includes maintaining the necessary physical books and all supporting documents for financial transactions (as required under the LG financial management)
- The bookkeeper prepares the monthly, quarterly and annual LG performance reports - LG activities during the period and the reports submitted by concerned sub-committees
- The bookkeeper prepares monthly, quarterly, and annual financial statements of the LG and submits them to the EC
- The master bookkeeper would undertake any other relevant financial management and book keeping roles delegated by LG

Reporting and Review

- The bookkeeper would provide monthly work reports to the LG-EC in a standard format that details the routine and special tasks undertaken during the month
- The LG-EC reviews the bookkeeper's monthly report in its monthly meetings and provides necessary guidance
- The LG-EC reviews the performance of the bookkeeper annually, and as appropriate, recommends changes in the terms of appointment, including remuneration

Pashudhan Sakhi (Livestock Resource Person)

Appointment and Training

- Pashudhan Sakhi should have knowledge and experience of livestock management
- S/he should be at least matriculation pass and have good command on calculation and have analytical skills
- S/he should be a local resident of the village and good reputation in the village
- CVDP team at the time of preparing village plans would identify and submit nominations to the LG and BPM for pashudhan sakhis candidates
- SPM, and APM Livestock would form the Pashudhan Sakhi Policy and selection process of the candidate
- LG would conduct basic test as defined by the Pashudhan Sakhi Policy and assess the qualification of the pashusakhi candidates
- Pashudhan Sakhi would be a staff of the LG and would be paid through the LG
- The APM and PE Livestock would develop the training modules on the training and capacity building of the cadre
- They would develop ToTs- District Manager Livestock, BPM, CC for regular training and handholding support to the cadre

The roles and responsibilities of the PSs are as follows:

- Impart modular training and demonstration to the members of undertaking goat rearing under the project
- Collecting and maintaining a record of existing goat status such as number of goats, gender, age of goat, feeding status, vaccination status, income from goat, the utility of goat milk, usage of goat dung, consumption of goat meat and such other basic information
- The PS would conduct regular monitoring of the goats kept and maintained by the HHs by visiting each house and will document the information monthly. Monitoring on the following aspects would be undertaken:
 - Regular and timely deworming
 - Regular and timely vaccination
 - Castration of male goats as per demand
 - Weight of the goats
 - Housing, feeding and water condition of the goats
- The PS would be responsible for providing timely information to the members regarding the date, time, venue of health and vaccination camps and will mobilize the members to take goats to the venue for availing treatment and vaccination
- Mobilize and promote the HHs for Azolla and Moringa farming to be used as goat feed, domestic production of concentrate feed rich in nutrition, apart from distributing the concentrate mixture procured at the block level
- Provision of vaccination, treatment and castration services at the doorstep of the HHs.
- The PS would produce cattle food in the form of channa, chaat, herbal supplements and could sell the same to the HHs on payment basis

Marketing services by the PSs

- Keep a track of the selling price of the goat across various local markets and pashu haats and communicating the same to the members

- Mobilizing interfered HHs to collectivize the goats and sell them in local haats or at pashu mela for demanding a higher price
- Identifying and developing sales with small prospective institutional buyers such as caterers, hostels and hotels
- Fix a selling price across all the breeds (price per kg body weight) at the village level so that all the village members should adhere to the price.

Reporting and Review

- The PS would provide monthly work reports to the LG-EC in a standard format that details the routine and special tasks undertaken during the month in the domain of livestock development
- The LG-EC would review the PS's monthly report, through close facilitation by the CC, in its monthly meetings and provides necessary guidance
- The LG-EC reviews the performance of the PS annually, and as appropriate, recommends changes in the terms of appointment, including remuneration

Krishi Mitra

Appointment and Training

- Existing Krishi Mitra of Agriculture Department would be leveraged as Krishi Sakhi, - collective planning of responsibility division for Krishi Mitra and Sakhi would be done by SPM IFS in coordination with the Agriculture Directorate
- Krishi Sakhi should have knowledge and experience of agriculture and horticulture, knowledge of integrated farming systems would be preferable
- S/he should be at least matriculation pass and have good command on calculation and have analytical skills
- S/he should be a local resident of the village and good reputation in the village
- CVDP team at the time of preparing village plans would identify and submit nominations to the LG and BPM for Krishi Mitra candidates
- SPM IFS and APM Agri would form the Krishi Sakhi Policy and selection process of the candidate
- LG would conduct basic test as defined by the Krishi Sakhi Policy and assess the qualification of the pashusakhi candidates
- Krishi Sakhi would be a staff of the LG and would be paid through the LG
- The APM and PE Agriculture would develop the training modules on the training and capacity building of the cadre
- The APM and PE Agriculture would also develop ToTs- District Manager Agriculture, BPM, CC for regular training and handholding support to the cadre

Roles and Responsibilities:

- Initiating the community mobilization in the livelihood group by mentioning the badi development intervention
- Coordinating with the CRC members on community demand collation under each of the intervention
- Coordinating with the treasurer in the group regarding the revolving capital and ensuring the availability for each sub-activity
- Managing the procurement of the planned inputs either through open market or through the existing schemes of the department
- Attending training and demonstrations at the block level as and when conducted under the project
- Providing training and capacity building of the farmers on various modules; good practices of cultivation, PoPs, soil and water management, integrating climate with the badi development, agrarian farming systems and other farm practices, sustainable use of the existing natural resources and such others
- KS would make a list of the input procurement and submit to the CRC for procurement from the State Seed Corporation

- Overseeing and managing the post-harvest aggregation from the agrarian interventions, especially for value chain
- KS along with CC would facilitate the farmers to submit loan application to the LG for taking input credit and support with bank linkage to avail KCC subsidy
- KS would regularly monitor the farmers activity and report to the CC and BPM
- KS along with CC would support the farmers in post-harvest management – aggregation at village level and primary processing at the CRC/FPO level
- Constant coordination with the CC with regards the execution of the intervention activities

Reporting and Review

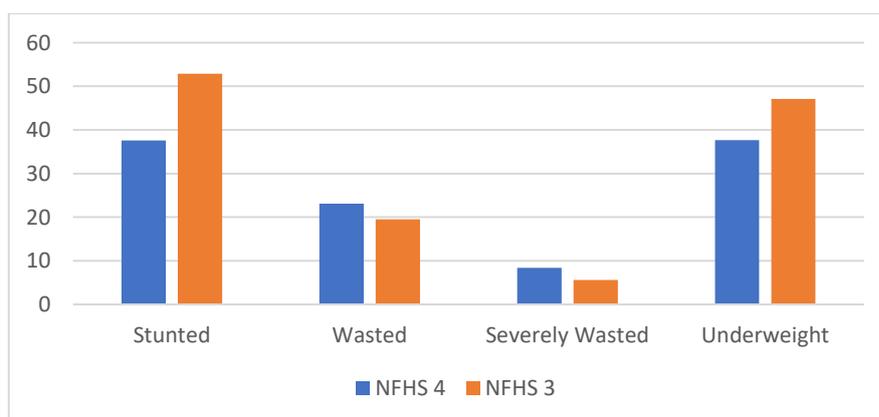
- The KS would provide monthly work reports to the LG-EC in a standard format that details the routine and special tasks undertaken during the month in the domain of agriculture and horticulture
- The LG-EC would review the KS's monthly report, through close facilitation by the CC, in its monthly meetings and provides necessary guidance
- The LG-EC reviews the performance of the KS annually, and as appropriate, recommends changes in the terms of appointment, including remuneration

3.2. Household Food Availability and Nutrition Practices

Nutrition is a critical development imperative for enabling the health of a society enabling its economic and social empowerment. It constitutes the foundation for human development by reducing susceptibility to infections, related morbidity, disability, and mortality burden, enhancing cumulative lifelong learning capacities and adult productivity. Nutrition is acknowledged as one of the most effective entry points for human development, poverty reduction, and economic development, with high economic returns⁸⁹.

The government of Chhattisgarh has laid down significant initiatives to improve the maternal, child, and adolescent health and nutrition status, like implementation of schemes and programs as – POSHAN Abhiyaan, Navajatan, Navanjor, Wajan Tyohar, strengthening of ICDS. Despite these initiatives, nearly 23% (~ 6.4 lakh) children aged 0-5 years are acutely malnourished in Chhattisgarh, of which 8.4 percent (~2.76 lakh) children are severely acutely malnourished. As high as 12% children of age below 6 months are age in Chhattisgarh are Severe Acute Malnutrition. Slightly more boys (9.2%) than girls (7.6%) are SAM, and mothers of nearly 9% of SAM children are underweight.

Child Undernutrition in Chhattisgarh

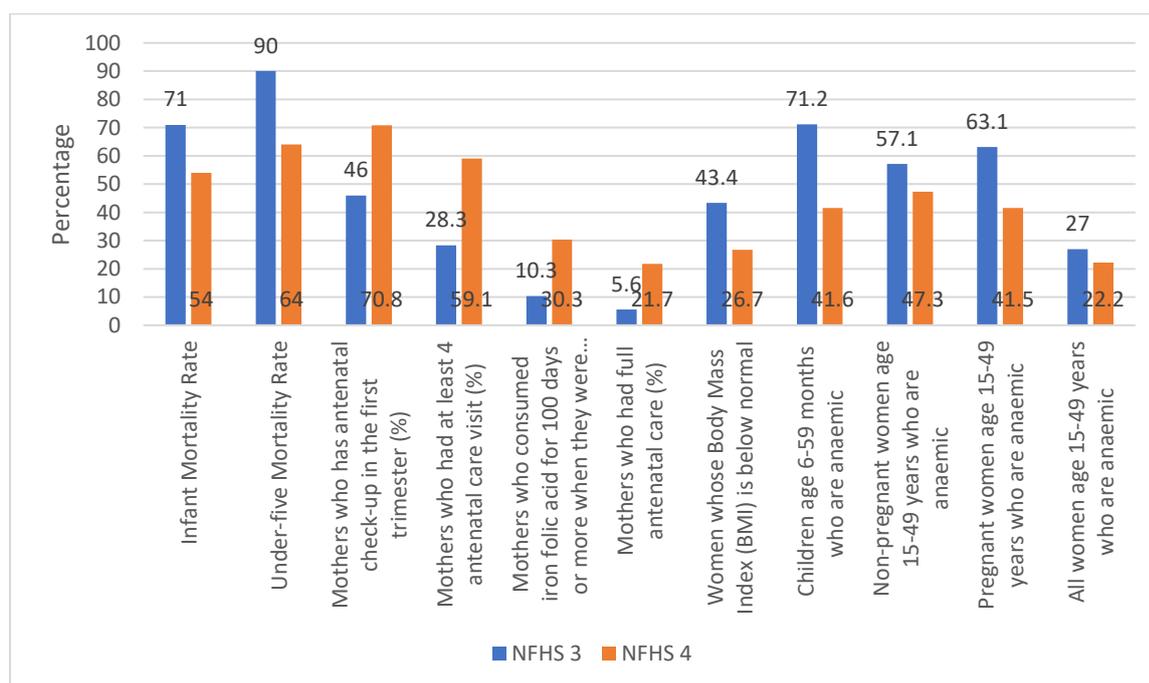


The major reasons for undernutrition are the poor health of mothers and weak childcare practices. It is recommended by WHO that breastfeeding should begin immediately after birth and that infants should

⁸⁹https://niti.gov.in/writereaddata/files/document_publication/Nutrition_Strategy_Booklet.pdf

be exclusively breastfed for the first 6 months of life⁹⁰. Although breastfeeding is nearly universal in Chhattisgarh, most children do not begin breastfeeding immediately after birth. Only 47.1% of children under age 3 begin breastfeeding in the first hour. Further, 77.2% of 0-6 month babies are exclusively breastfed. At age 6-8 months, all children should receive solid or mushy food in addition to breast milk. Only 53.9% of children, in rural areas, of age 6-8 months received the recommended combination of breast milk and solid or mushy foods.

For women's health, anemia is a serious problem among women in Chhattisgarh. About 43.4% women have body mass index below normal. Moreover, 22.2% of women of age 15-49 in Chhattisgarh are anemic (41.5% of pregnant women are anemic). Numbness and tingling of hands and feet due to vitamin B1 deficiency is very common. Undernutrition due to lack of access and awareness is a major reason for anemia and poor health status of women and children in the state.



Undernutrition is the outcome of a complex interaction between insufficient dietary intake, absorption, and inadequate prevention and management of disease/infections- these are the immediate determinants of undernutrition. Underlying determinants include the lack of access to health and childcare services, safe drinking water, sanitation, and hygienic environments, lack of access to household food security and livelihoods, and inadequate caring and feeding practices for children and women⁹¹.

Though the status of malnutrition and health indicators have improved from NFHS 3 to 4, there is still a need to address malnutrition holistically. Further the global COVID-19 pandemic has further rendered this population very vulnerable to the infection. The sharp spread of the virus is expected to have immediate and medium-term consequences, severely impacting vulnerable communities, especially women and children, and remote tribes⁹². The children suffering from wasting are at higher risk during this pandemic because of their low immune system, disruption in potential nutritional services and their dependency on parents for feed, care and support. Not only children, but women are

⁹⁰https://www.who.int/nutrition/topics/exclusive_breastfeeding/en/

⁹¹https://niti.gov.in/writereaddata/files/document_publication/Nutrition_Strategy_Booklet.pdf

⁹²<https://www.unicef.org/india/media/3571/file/UNICEF-India-COVID-Response-Plan-14May.pdf>

too vulnerable to the nutrition crisis as disrupted food system and income loss has prevented their access to nutritious diet and services.

The Government of Chhattisgarh has very proactively started “Donation on Wheels” campaign to help people during Covid-19 lockdown where ration packets are being delivered at the doorstep of the underprivileged population⁹³. Further, the government has distributed lump sum rice in the month of April and May 2020 to all the beneficiaries under the Public Distribution System, and children under the Mid-day Meal Scheme on account of closure of schools. Additionally, distribution of take-home ration was also arranged for the children at Anganwadi centres, thereby combating malnutrition in the state amidst pandemic⁹⁴. The government is also planning to launch a campaign for eradication of malnutrition and anaemia in all 11 aspirational districts on Gandhi Jayanti, on 2nd October 2020. Under the campaign, people suffering from malnutrition and anemia will be provided free-of-cost nutritious food every day in aspirational districts. This campaign was started in July 2020 as a pilot project in selected panchayats of Bastar and Dantewada districts and will be rolled-out to other aspirational districts suffering from malnutrition and anemia where free meals will be provided to them⁹⁵. These initiatives have supported in minimizing the impact of the global pandemic on the health and life of the children and women from underprivileged section of the society.

However, to ensure visible and sustainable improvement in the nutrition indicators, it is necessary to develop a comprehensive nutrition supportive program having components of diet improvement, proper feeding and childcare practices, improving the consumption of nutritious crops, water, sanitation, and hygiene practices to address the issue of malnutrition, including its risk factors or determinants.

3.2.1. Objective

CHIRAAG envisions to comprehensively cater to the challenges of malnutrition by working on the production system, increasing income levels to address the determinant of poor nutrition as poverty, at the same time working on the changing the community behavior to bring adaptive changes for improving the intake of nutritious food. CHIRAAG envisions to implement an integrated program for ensuring holistic development of the target population,

- Improve the awareness about nutrition, safe drinking water, and sanitation practices
- Kindle participative discussions of issues like gender, alcoholism and other social factors linked with nutrition such as infant feeding practices, importance of first thousand days, health of pregnant /nursing mothers and adolescents.
- Enable behavioral change and communication for sustainable and adaptive change within the community
- Integrated development of the community production and consumption practices
- Promote the production of indigenous crops of high nutrition value
- Targeted focus on children with severe acute malnutrition
- Improving nutrition level for adolescent girls and women in a sustainable manner
- Develop community nutrition champions to enhance program penetration and sustainability

Women's empowerment (including women's control of economic resources) is linked closely to nutritional status and can result in decreased malnutrition. Beneficiary communities and households, with a special focus on women as 'change agents', will be targeted to plan and consume diverse, locally available and nutritious foods in their households. Support will be provided to women and adolescent girls in the adoption of positive nutrition and related practices, including their engagement in improved and diversified homestead gardens supplying year-round nutritive food, thereby leading to improved nutrition outcomes of women and children.

⁹³<https://www.aninews.in/news/national/general-news/chhattisgarh-hospital-contributes-for-covid-19-relief20200412123454/>

⁹⁴<https://www.prsindia.org/theprsblog/government-chhattisgarh%E2%80%99s-response-covid-19-pandemic>

⁹⁵<https://swachhindia.ndtv.com/chhattisgarh-gears-up-to-launch-a-campaign-to-fight-against-malnutrition-and-anaemia-in-october-36565/>

3.2.2. Activities to be spearheaded

I. Micro-Planning

To meet the objective of improving nutrition outcome for women, adolescent girls, and children it is imperative to understand the regional context of Chhattisgarh as well as understand the nuances of the problems related with undernutrition and lack of WASH practices.

Micro-planning is a critical exercise to be conducted within the project for deep-diving into the regional context and dissect the social and economic context of the community for enhancing the understanding.

The micro-planning exercise would be conducted in coordination with the key departments to facilitate the development of nutrition centered planning for each household. The micro-planning exercise would follow the participative and inclusive exercise and enable the development of the household level plan. This would entail understanding the nutritional level and status of women, child, and adolescent girls in the household. The exercise would be integrated with the agriculture and allied department micro-plans to identify the necessary changes required in the crop and livelihood support to the targeted families for improving their nutrition levels. The micro-planning would assess following key points for each household, from the perspective of nutrition:

- Nutrition level of women, adolescent girls, and children in the family
- Crop pattern practiced in the target family
- Consumption pattern and diet intake of the family, especially women, adolescent girls, and children
- Measure the status of the family on the critical health indicators
- food availability, diet diversity and food security indicators

The exercise would be conducted by the field functionaries of the project and the WCD department. The exercise would enable in developing an integrated household level plan for improving the crop pattern based on family's nutrition requirement, at the same time, identify the immediate issues of malnutrition to be addressed.

II. Developing Strategy for Behavioural Change and Communication (SBCC)

The roots of poor nutrition lie in human behaviour⁹⁶. Improvements in nutrition are not possible without broad, widespread changes in the everyday behaviours of people and organizations around the world. In its Technical Guidance Brief for Effective At-Scale Nutrition Social and Behaviour Change Communication, USAID acknowledges that “virtually all the immediate and underlying causes of malnutrition are behavioural—influenced by the behaviours of individuals and their household members⁹⁷.”

Evidence shows that that people can change their behaviours to improve nutrition outcomes, especially when the environment in which they live and work supports those changes⁹⁸. Nutrition supportive program design is the cornerstone for CHIRAAG. To improve the nutrition outcome for the target population, CHIRAAG would adopt a behaviour centred approach. This implies that from the beginning of the project it would have clear behavioural change goals in place to tackle anaemia, stunting, undernutrition.

The project would design a robust Strategy for Behavioural Change and Communication for improving the nutrition outcome for women, adolescent girls, and children, and lead to women empowerment and a healthy society. The strategy would detail out the elements of community sensitization and mobilization activities. It will facilitate two-way communication process and will encourage communities to voice up their views and suggestions. Intensive community engagement would be done to identify barriers as well as boosters to improve nutrition outcomes and implement the solutions in a participative manner.

Objective: A Social and Behavior Change Communication (SBCC) program will be designed and implemented to increase knowledge and influence the adoption of recommended maternal infant and

⁹⁶ <https://www.spring-nutrition.org/publications/briefs/moving-nutrition-social-and-behavior-change-forward>

⁹⁷ Ibid

⁹⁸ Ibid

young child feeding, and water, sanitation and hygiene (WASH) behaviors and practices. The SBCC strategy will focus on adolescent girls and young women to imbibe sanitation practices and benefits of improved nutrition through interactive messaging, kitchen garden demonstrations and regular meetings/monitoring at the village level through GCs. The major objectives would be to:

- Enhance nutritional practices improve the intake of nutritious food for adaptive behavioural change among women and adolescent girls
- Improve awareness and WASH practice among the target community for building a health community
- Motivate the community to take up nutri-rich crop cultivation, engage in improved and diversified homestead gardens
- Foster women empowerment through engaging the women in participative discussions and mobilizing them to discuss about their health and nutrition

3.2.3. Activities to be Spearheaded

CHIRAAG would address the issue of nutrition in three-fold manner. It would develop an SBCC strategy for sustainable behavioural change, further it would design and deliver training modules on Nutrition Supportive Resilient Production Systems, and other nutrition related aspects further it would design demonstrations for learning nutrition and hygiene related best practices.

The strategic implementation of nutrition initiatives would entail following set of activities:

i. On-boarding of the TSA

The project proposes to hire a Technical Support Agency to provide high quality and specialized technical assistance in development of **Social Behaviour Change Communication (SBCC)** strategy integrated with nutrition, the cross-cutting theme of CHIRAAG and support at state, district, block and cluster levels to ensure that the teams are equipped to achieve planned results. The key areas of technical and operational support include, but are not limited to the following:

- Coordination with TSA identified for CHIRAAG Village Development Plans (CVDP). The SBCC TSA would support in:
 - social mobilisation around nutrition, health and WASH while designing entry point activities
 - to understand the process involved in participatory planning and develop participatory tools related to nutrition for data collection and consolidation to be used by the facilitation teams to prepare an integrated village development plan
 - formation and capacity building of LGs and CRCs towards NSA for diet diversity and food processing and enterprises for year-round availability of foods.
- Conduct formative and implementation Research: Formative research is the pioneering stone for designing SBCC Strategy. The TSA would be responsible for preparing the entire framework, define approach and methodology for the Formative Research. Further it would deploy resources and conduct the resource on ground. The outcome of the research would determine the underlying social and behavioural aspects of the community responsible for their nutritional, livelihood and other behavioural patterns. These insights would form the foundation of the SBCC Strategy
- Prepare the SBCC Strategy: the TSA would work in tandem with the SPM Nutrition and SPM IB CB to design the SBCC strategy. The TSA would analyse the results of the formative research, it would prepare a detailed insight report. The report shall cover the insights on the behavioural aspects of the community affecting nutrition, choice around cropping pattern impacting nutrition and health outcomes
- Training and Capacity building: the TSA would support in building state's capacity for understanding the system of nutrition and health. Further identify the challenges impacting nutrition outcomes. Further the TSA shall design the modules on delivering SBCC on field, it would provide training to the project staff for developing the ToTs
- Community empowerment: TSA would deliver initial SBCC modules in the field for the target community. At the same time it would lay develop and implement modules and activities for empowering the community
- Documentation and awareness generation: One of the key support of the TSA would be to document the success stories for learning, and scaling up

ii. Conducting Formative Research

Evidence based behaviour change study is imperative to design as effective behavioural change strategy. The study would help in understanding existing attitudes, perceptions, and practices within the community social context; constraints to adopting desired practices; and ways to overcome the resistance⁹⁹. When it comes to implementation of behaviour change strategies and action plans for women and child health, tribal families and women there is a paucity of the information. So far there has been no such comprehensive study carried out in the state, hence it would be helpful for the larger universe of government agencies to derive usable insights from the study. Multiple tool-kits have been designed to conduct behaviour change formative studies and defining the BCC strategy, like, Behavioural Change Intervention Toolkit, by Nutrition International¹⁰⁰, Behavioural Change Toolkit for International Development Practitioners by People in Need¹⁰¹, which could be leveraged.

The study would entail:

- Carry out communication's situational analysis
- Determine broad communication for behaviour change objectives on overall project objective
- Review existing information and analyse information gaps
- Complete assessment of institutional capabilities and decide on basic responsibilities
- Plan and conduct initial formative research

The study would lead to the development of a comprehensive document which would provide detailed understanding on:

- Baseline knowledge, perceptions, attitude, behaviour, cultural beliefs or community felt needs for nutrition, hygiene, health and other issues as:
 - Maternal and new born health
 - New born care
 - Nutrition of adolescents and women (adolescent girls, married women, pregnant women)
 - Child health
 - Routine immunization
 - Consumption pattern and practices
- Traditional, cultural, social, political, environmental reasons for behavioural patterns
- Identify the barriers for behaviour change
- Determine motivation and factors likely to enable, reinforce bcc for desired behaviour change
- Barrier-analysis identify potential barriers for BCC strategy, example:
 - political commitment and leadership
 - social mobilization and advocacy
 - cultural values and beliefs
 - partnership, alliances and networks for BCI implementation
 - resource mobilization
 - gathering evidence on the effectiveness of BCI through research
 - monitoring and evaluation
 - any other factors likely to promote or hinder behavioural change
- Training need analysis – specific to the communities and geographical areas

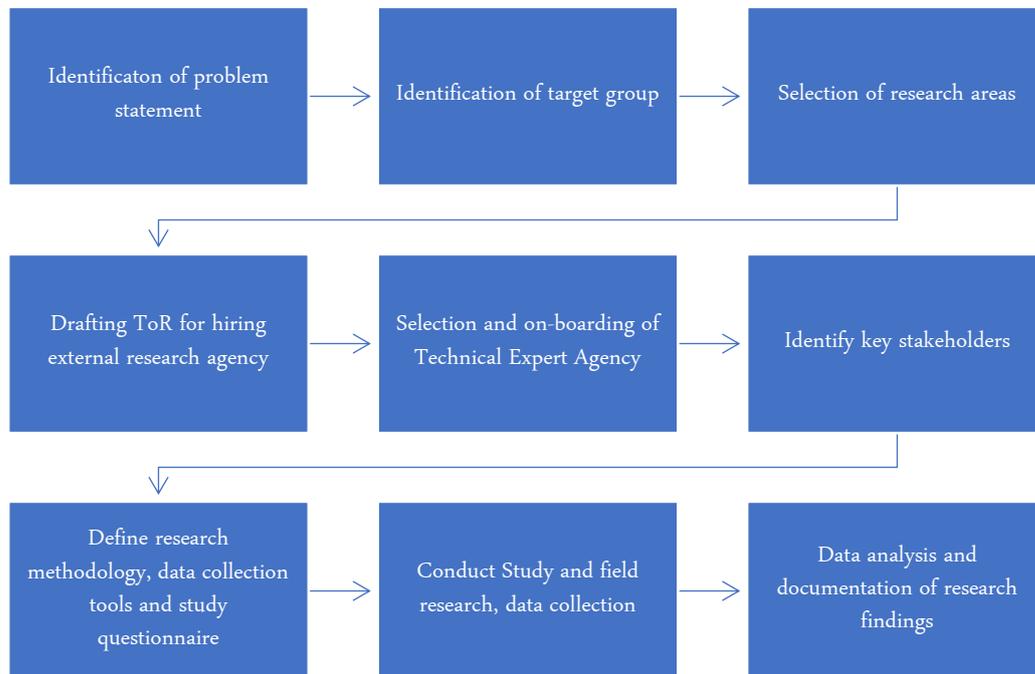
⁹⁹ "Behavior Change interventions and child nutritional status, Evidence from the Promoting of Improved Complementary Feeding Practices," USAID, IYCN, June 2011

¹⁰⁰ "Behaviour Change Intervention Toolkit," Nutrition International

¹⁰¹ Petr Schmied, "Behavioural Change Toolkit for International Development Practitioners Enabling People to Practice Positive Behaviour," People in Need, May 2017

- Communication channels available to reach target groups
- Success and failure of so far bcc activities and reasons for the same

The document would pave the way for designing SBCC strategy for the proposed nutritional interventions.



Identification of problem statement: An ideal problem statement would comprehensively cover the major challenges and reasons in achieving the objective and outcome determined in the project, for the target audience in the defined geographical area. CHIRAAG is focusing on Nutrition Supportive Resilient Production Systems. Hence it is vital to identify behaviour patterns which are critical to improve the nutritional levels of the community. Parallely, Women and Child Development department is focused on improving child nutrition specifically to cater stunting and wasting. In addition to these promoting resilient production systems, may entail study of behavioural pattern for sustainable farming. The problem statement dives deeper into the reasons of behaviour issue. The problem statement of CHIRAA BCC would address to following objectives:

- Improve nutritional levels among poor, especially tribal women, pregnant and lactating women and children
- Improve child nutrition for severely malnourished children
- Ensure adaptation to resilient and sustainable farming practices

The following indicative questions could be used to define the problem statement¹⁰²:

- What is the behavioural problem?
- What causes the problem?
- Who is affected and to what degree?
- What could happen if the problem is not addressed

Identify potential target audience:

Selection of Potential Primary Audience:

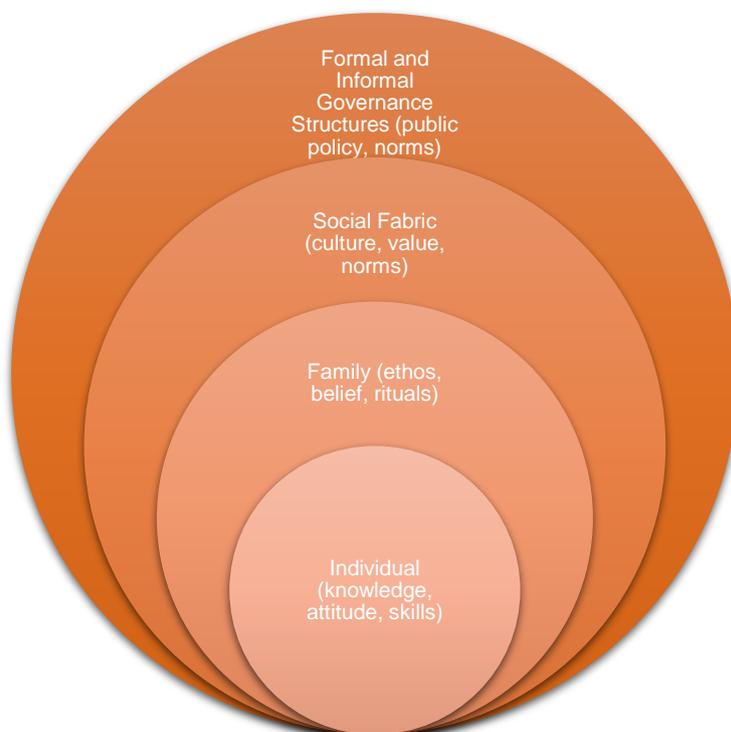
¹⁰² “Behaviour Change Intervention Toolkit,” Nutrition International

The SCBCC in CHIRAAG would focus on adolescent girls and women. Further the TSA would conduct a more detailed study of the target group for enhancing the understanding of the population. Also the target population can be specifically categorised into various segments to define a tailored and suitable SBCC strategy. Following criteria could be used to segment the population:

- Demographic characteristics
- Geographical characteristics
- Lifestyle

Selection of Secondary Target Audience:

Secondary audiences are people who influence the primary target audience. As a result, secondary audiences can influence both behaviour and potential change in the primary target audience. An exercise of System Thinking could be done to map the primary audience with the secondary audience. **Figure 1** represent the Socio-ecological model, which may also be leveraged to map the respective audience and their influence.



iii. Designing SBCC Strategy

Behavioural change strategy would be anchored of properly defined problem statement, accurate identification of the target audience, and identification of the desired behaviour. An integrated strategy for the targeted audience, through an effective channel of communication focused at interpersonal, family and community would be implemented in a “phased campaign approach”. Human Centred Design could be followed in designing campaigns for behaviour change.

The TSA would play a critical role in defining and designing the SBCC Strategy. The output of the formative research would flow into the design of the BCC strategy. Basically, SBCC shall cover following points:

Develop an enhanced understanding of the Target Population: during the formative research the TSA would assess the behavioural pattern of the target population – women and adolescent girls. It would further try to understand that the underlying reasons behind those behavioural patterns. During the SBCC the TSA would identify the priority audience, what proportion of them will be reached with messages and how often and over what period(s) of time.

Further, SBCC needs to be very specific and targeted. Hence it is proposed to implement the strategy in a planned manner approaching “one behaviour at a time”. As CHIRAAG BCC is strategy has two-fold objective targeted of improving nutrition outcome for women, adolescent girls and children and enabling women empowerment, it is advisable to prepare a behaviour change calendar and keep the message, concise and clear.

The TSA shall also identify the behavioural patterns that should be targeted for enabling the desirable change in the community. Further it should prioritize the target behaviours, following criteria could be applied to filter the target behaviour and prioritize:

- Can this behaviour be changed in the time span of the project?
- Is the behaviour likely to change as a result of a behaviour change intervention?
- If audience members take the desired action, will it make a measurable difference in solving the target problem for the intended beneficiaries?
- Can the BCC strategy be implemented at scale? Or within limits of budget?

The SBCC calendar should converge with the crop cycle, migration periods and must take into account religious, social, and cultural events and gatherings.

SBCC Should have following modules:

Promote indigenous food: CHIRAAG would enable **organizing food fairs and indigenous cookery competition as a SBCC strategy.** These events would be organized at the village level fostering the behaviour change within the community to **adopt local traditional indigenous food, like rosella fruit juice, drumstick, mahua leaves and seed, chironji, saal seed.** The events would lead to identification of local cuisines and recipe which would further be documented to develop traditional knowledge for indigenous food practices.

WASH practices to mitigate the risks of COVID-19: The BCC strategy for WASH practice would target on increasing the adaptation of target behaviours. This would include improving the practices for safe drinking water, hygiene and sanitation.

Health and Nutrition of Women and Adolescent Girls: The module would spread the awareness on improving the consumption practices within the community for enhancing the health and nutritional outcome within the community. Example, organizing discussion and cooking session around indigenous high-nutritious cousins, rosella juice. It would spread awareness on aspects of health of women and girls, factors affecting it, and build a platform where the community could build sustainable positive behavioural patterns. Example, ensuring consumption of local green vegetables and high iron content fruits for reducing the anaemia occurrence.

MIYCF practices during 1000 days window of opportunity: The module would sensitize the parents, especially women on adapting practices for a healthy child. The modules would develop positive behavioural adaptation within the target group to improve the health outcome for pregnant and lactating women and their children. Example motivating women for breastfeeding the child till 2 years from the child birth. The behavioural change communication strategy would mobilize the women and motivate them to adapt the healthy maternal and child care practices.

Crop planning basis nutritional value and agro-climatic zone: Farmers often use their traditional knowledge for crop selection, in some of the cases where the farmer is aware, they take cropping decision based on the market demand. However, CHIRAAG envisions to spread the awareness among farmer to account for agro-ecological and nutritional factors along with their traditional experience and the market demand. Example, millet cultivation could be promoted in the suitable geographies of

Southern Chhattisgarh because millets have high nutritional value and its cultivation and consumption would enhance the nutritional standard of the poor. Further Millets is suitable as per the agro-climatic conditions of the southern area because it requires less water for cultivation.

Nutrition Smart Agriculture/Nutrition Sensitive Agriculture for diet diversity: As discussed above the producers would be motivated to adapt to Integrated Production Systems including agriculture, horticulture, livestock and fisheries to improve income as well as nutrition. Farmer would be mobilized and made aware of the benefits of nutrition supportive agriculture/production system. Example, farmers taking paddy crop in low land may practice fish cultivation (small fingerlings) on the same field. Thus fish consumption would provide additional source of nutrition for the family. Additionally, farmers can integrate backyard poultry along with badi. Poultry could grow on the fruits and vegetable waste and provide additional income and nutrition to the family. Hence special modules would be designed to promote the IFS and nutrition sensitive production practice.

Homestead food production for diet diversity: Homestead food production would support farmers to adapt the model of backyard badi. Special awareness programs would be designed to increase the uptake of the model as it has dual advantage of increasing income and nutrition for the family.

Further farmers would be motivated to consume the nutritional crops harvested. Often farmers sell the produce in the market and sustain on the PDS ration, however, farmers would be motivated to cultivate nutritional crops and consume it to improve nutrition.

Food Storage, preservation and processing to have round the year food availability: COVID-19 has underscored the importance of food preservation at the time of calamity. It is beneficial in dual terms – one to reduce the post-harvest loss due to spoilage of fruits and vegetables at the same time, it enhances the shelf-life for long term consumption and increases the market value of the produce.

Specialized modules would be designed to identify the indigenous practices of food preservation and processing through sustainable and organic manner and share the methodologies with the target community. Modules would train the target community and spread the awareness to increase the practice of food preservation.

Define the BCC communication message and delivery strategy

The TSA would define the communication message for the target behaviour change. Further it shall define the mode of communication. Social marketing mix could be leveraged to develop an appealing strategic intervention effective SBCC. The marketing mix is a set of tools (Product, Price, Place and Promotion) to develop a combination of activities to effectively enable behavioural change.

The delivery strategy translates the content of the messages into specific creative executions that are meant to encourage the target population to adopt the intended behaviour¹⁰³. It would include:

- Positioning and key messages
- Logos, fonts, tag lines, headlines, visuals and colours for your printed materials
- Scripts, actors, scenes, and sounds in the audio-visual media advertisement

In the context of CHIRAAG the **content and the communication level would be vernacular and specific to the context of target population**. Also, the message needs to consider the cultural, social, regional sensitivity of the area and communicate the message in a responsible manner.

Nukkad Natak: Chhattisgarh has rich cultural diversity. The idea is to leverage the local traditional platforms to communicate the SBCC message to the targeted audience. **SBCC would promote Nukkad Natak or Street Play at local Mela, Haat, community gathering temples, communicating the message in the vernacular language to the community**. This would support in engaging with the community in an enhanced manner and mobilize to facilitate further group discussions.

¹⁰³https://www.nutritionintl.org/content/user_files/2019/02/BCI_Tool-kit_Digital_NI_2019.pdf

In addition to these additional strategies would be identified, example **leveraging IT platforms for communication**. The TSA would conduct detailed study and identify appropriate strategy for communication of the target message.

iv. Designing Nutrition Related Training Modules

CHIRAAG would develop a robust training strategy for nutrition enhancement in the target geographies. The TSA would work in convergence with the SPM, APM SBCC and Staff of Women and Child Development department to understand the training need of the project staff and the target community. Further well thought and contextualized training modules would be designed on diet diversity, crop selection based on the nutritive value of the crop, adolescent nutrition and WASH practices with special focus on improving hygiene factors amid COVID.

A. Training Need Assessment (TNA)

The APM Nutrition in close coordination with the TSA would conduct training need assessment of the project staff at multiple levels – SPMU, DPMU, BPIU, as well as the target population. Further SPM, and APM IB-CB would provide necessary technical support to the nutrition team while conducting the training need assessment and deriving usable results.

The insights developed would support the nutrition team in identifying and finalizing the set of training modules required for the staff and community. At the same time understand the type of preferred delivery method and mode of communication.

SPM IB-CB would help the nutrition team in developing a format of training need assessment, in the context of nutrition. TSA would support in identifying the approach and methodology for data collection and analysis for assessment of the TNA. The district and block team of the project would support the data collection from the field. Post the assessment of the TNA results a detailed list of modules, training delivery methodology would be designed.

B. Designing Training Modules

Based on the feedback and results of the TNA the TSA along with SPM, APM IB-CB and SPM, SPM Nutrition would design the necessary training modules. These training modules shall be designed to create a desirable impact and achieve the PDO and RF indicators. The idea is to develop a holistic approach in nutrition training – integrate it with the SBCC strategy, demonstration for blended learning for the target community.

Further the training modules shall also be developed in convergence with the training modules of Integrated Natural Resource Management and Nutrition Supportive Resilient Production Systems. As nutrition is cross-cutting element of CHIRAAG the nutrition support would be integrated across each dimension of the project, at the same time the aspects of farming and production systems shall be integrated in the modules of nutrition.

Also, it should be brought into cognizance that the training modules shall be designed in two-fold manner:

- For training the internal project staff and cadres – developing internal capacity building and pool of trainers to scale up the training to all the cadres and target community members. The training program for trainers would include **facilitators manual, session outline**
- For training of the target community members. These shall include the flip charts, interactive video and other tools for effective communication

The **major training modules of CHIRAAG for nutrition** shall be, inclusive of but not limited to:

a. Diet diversity

The CHIRAAG program envisions to build strong community adaptation in terms of reviving the food habits. Sankratization has affected the rural tribal areas as well, and the food patterns have been mordanized basis the food availability in the market. The program envisions to promote and enhance the consumption of indigenous variety of food – millets, roselle, pulses, local leafy vegetables.

Thus, the training program would be developed to influence the community for adapting to their indigenous food practices.

b. MIYCF

The first 1,000 days of life – the time spanning roughly between conception and a child’s second birthday – is a unique period of opportunity when the foundations of optimum health, growth, and neurodevelopment across the lifespan are established¹⁰⁴. Training modules would be designed to sensitize and train parents on understanding the importance of first thousand days and the needs of babies and young children during the period. It shall further include the practices that the mother and family need to follow to ensure the health of both mother and child. The program would also cover information about the government schemes and programs for improving women and child nutrition and health. Further it would cover the support in need-based initiatives to address the issues of severely malnourished children involving the front line workers, AWWs and Mitahnins.

The training would support the women understand the critical aspects of child care during the early days of pregnancy and child birth. It shall motivate the mother to adapt to healthy practices and ensure nutritional diet for the health and wellbeing for herself and the child.

c. Women and Adolescent nutrition

There is significant gap and lack of care and knowledge in women and adolescent nutrition and anaemia in the rural community. The training program would be designed to spread awareness and knowledge to the community and improve health and nutrition outcome for the target group. The program would cover an overview of nutrition and health with respect to women and adolescent girls, impacts of anaemia on women and adolescent girls. It would also cover interventions to improve nutrition and reduce anaemia through consuming locally available food items. The program would also cover information about the government schemes and programs for improving nutrition and health outcome for women and adolescent girls.

d. WASH practices

COVID has underscored the importance of WASH practices. The training program for WASH would cover the best practice for safe drinking water, sanitation and hygiene. The program would include the modules on discussing the importance of WASH, behavioural patterns within the rural community, best practices for WASH, local resources and indigenous habits/practices for WASH. The program would support in improving the overall health outcome within the community and support in meeting the project objectives.

C. Designing Delivery Strategy, IEC materials, and Training Delivery Modules for Training and SBCC

The TSA would be responsible to design the overall SBCC delivery strategy. While designing the strategy the TSA would conduct multi-stakeholder workshop, with NGOs, National and International Organizations working in CG in the health, women and child development, and nutrition sector. In the workshop the TSA would discuss the outcomes and insights of the formative research. The inputs of various stakeholders would help in developing an more informed, contextual and targeted strategy for SBCC implementation.

The TSA will be responsible for developing the trainer modules for imparting training and SBCC. The modules would be developed for two-set of audience.

CHIRAAAG envision to implement the training component in ToT: Trainer of Trainee mode, which means that first a set of trainers would be developed within the project staff, who will help to scale up the training intervention in all the selected geographies to the target community. For developing the internal trainers, the TSA would develop trainer/facilitator guides, booklets, session outline, training plan, delivery schedule

The training delivery modules would be designed in cognizance of the local context of the community and preferably in the vernacular language. The training plan would be made in congruence with the training of other components – CBNRM, IFS, and others. SPM, APM IB-CB would support the TSA in designing the training calendar. Further the training and BCC calendar of the Nutrition Component would be in accordance with the crop cycles as nutrition training would also cover adaption

¹⁰⁴<https://professionals.childhood.org.au/bringing-up-great-kids-old/1000-days/>

Based on the type of training and the audience the TSA would design different type of delivery modules. These would be IEC materials - flipbooks, posters, films and community-led videos by resource agencies based on the outcomes of the formative research

v. Developing Master Trainers for SBCC

It would be pertinent to note that the SBCC strategy delivery would happen in the ToT mode, this means that the SBCC TSA would train and develop the master trainers. There could be two level of master trainer – project staff and field functionaries, and second as community cadres. It is critical to notice that the nutrition team of the project – SPM Community Institution Building and Nutrition, APM Nutrition & SBCC and District Coordinators – Social (Nutrition, Gender and ESF) would be anchor of the implementation of the nutrition and SBCC activities in the project. Hence, the entire team would be developed as the first tier of master trainers.

Further the SBCC TSA, APM Nutrition and SBCC, District Coordinators Social (Nutrition) would develop the second later of master trainers as BPM and CC.

The criteria for the developing BPM and CC as master trainer would be as follows

- The project staff should have some interest in the SBCC
- The project staff has just started implementing or is implementing the nutrition activities in his/her block
- The project staff is willing to champion of the nutrition activities in the field

At least one CC in each block could be developed as master trainer in the SBCC and Nutrition

vi. Conducting Pilots

The TSA would be responsible for conducting the pilots for the SBCC intervention. The Intervention would help in testing the SBCC strategy on the target audience and rectify any errors and update the strategy based on the pilot outcomes and stakeholder feedback

vii. Demonstrations on Nutrition

The TSA would design the nutrition demonstrations for the target community. These demonstrations would be conducted in the village, with the target community adolescent girls and women at the IFS Schools. These demonstrations would entails cooking demonstrations for nutritive dishes. TSA would conduct a study to identify the nutri-rich indigenous dishes and document the preparations. Further the TSA would prepare a cook-book of nutri-rich dishes and recipe. Furthermore, the TSA would conduct the cooking demonstrations of these preparations in the target geographies, training and motivating women to adapt to nutri-rich food choices and preparations.

viii. Implementation of the SBCC Strategy, Training, and Demonstrations

SBCC strategy would be the cornerstone for enabling the desired change for improving the nutrition outcome and developing a healthy society. SPM, APM Nutrition and TSA would work in tandem for effective implementation of the strategy on ground. The DPM, Manager Social Development & Nutrition, BPM, and CC would play a critical role in the effective mobilization of the community supporting the TSA in conducting pilot and monitoring the impact and gradually scaling up the strategy implementation and follow up with the community.

A. Hiring of Poshan Sakhi

Poshan Sakhi would be, a nutrition facilitator - project cadre leading the implementation of the SBCC strategy at the village level. S/he would be a local community person, selected by the LG for intensive roll-out of the SBCC strategy in the particular village. There would be 1 PS per village. She would champion the SBCC at the village level. The idea is to identify a local leader within the community who is well-trusted by the community, this would set a leadership example. Further the women would be comfortable to communicate and interact with a local resource person. This would support in enhancing the community ownership, at the same time increase the penetration and reach of the program.

The Poshan Sakhis would be the active foot-soldiers being the first point of contact for the community for any support required for the nutrition program. The Poshan Sakhis would be trained by the field

staff and would be responsible for further training the community members on the defined training modules of nutrition and WASH and implement the SBCC for the desired outcome.

Selection process:

The community members would self-nominate themselves for becoming to work as Poshan Sakhis. An eligibility criterion would be defined by the Assistant Project Manager for selection of the Poshan Sakhis, some of the indicative criteria are:

- S/he should have at least passed matriculation examination
- S/he should have good understanding of the village dynamics
- S/he should be good in communication
- S/he should have basic understanding of good nutrition practices

The candidates would submit their application to their respective hamlet group/LG. The applications would be submitted to the LG. CC would facilitate LG to conduct a basic examination/test of the candidate to assess the knowledge on health, nutrition and hygiene practices. Based on the performance the candidate would be selected through village organization. She would be paid incentive-based honorarium as determined by the Nutrition policy at the State Project Management Units.

Training:

- The TSA and APM Nutrition and SBCC would develop the training modules on the training and capacity building of the cadre
- The TSA and APM Nutrition and SBCC would also develop ToTs- District Manager Social Development and Nutrition, BPM, CC for regular training and handholding support to the cadre

Roles and Responsibility of the Poshan Sakhi, S/he shall be responsible for:

- Developing a rapport within the community about the CHIRAAG nutrition program and instantiates
- Acting as a link between the project field functionaries, staff and the community
- Providing support to the TSA and project staff on conducting formative research or any study
- Mobilizing the community and sensitizing them about the importance of participating in the nutrition campaign training programs
- Delivering the SBCC modules and nutrition-based training on field to the target population
- Providing support to the women and adolescent girls regarding any nutrition, WASH, health related issues, direct them to right resources regarding the concern
- Working in tandem with other community cadres for converging the implementation of the SBCC with the IFS strategy
- Regular monitoring of the program indicators related with nutrition

B. Nutrition and IFS Schools

CHIRAAG envisions to develop Integrated Farming System School for providing on-field training to the farmers. These centres would be established at the village level. The technical trainers, CC, Community Cadres would provide training to the farmers in these schools. These schools would also provide a platform for Poshan Sakhi, and Nutrition technical trainers to provide training to the target population on nutritional aspects and further leverage it to conduct nutrition related demonstrations and deliver SBCC modules.

ix. Documentation

The TSA would be responsible for effective documentation to build institutional knowledge. As a part of the SBCC strategy the TSA would document the indigenous nutri-rich variety of crops and food items and its indigenous preparation.

Further during and post-SBCC strategy delivery the TSA would focus on documenting the success stories and best practices SBCC. This would help in developing the capacity of the state project staff and at the same time develop a repository, that could be accessed by anyone to develop an enhanced understanding of nutrition oriented SBCC in the context of tribal community. This repository would fundamentally help the government and development agencies to learn from the success of the CHIRAG nutrition intervention and develop a more robust strategy further.

documentation of traditional foods in tribal areas and develop nutritious recipe book for demonstrations at IFS school.

x. Monitoring

TSA would also support the project staff in regular monitoring of the program:

- i. Support in roll out and analysis of findings on monitoring of ongoing capacity building activities.
- ii. Develop community-based monitoring and review tools to measure the progress of the result indicators which will be integrated into the MIS designed for the project.
- iii. Capacity building of the state level teams about the approaches for nutrition supportive agriculture and roll out nutrition interventions as cross cutting theme of all components in the project.
- iv. Document the best practices across the regions and assist in the dissemination and publication of lessons learnt in the project

Monitoring and Evaluation Plan

M&E Plan is a critical component of SBCC strategy and it enables to understand measure whether the SBCC strategy has successfully brought the desired impact, identifying the reasons for success and failures. It strengthens decisions making to improve your SBCC based on assessment of overall intervention, feedback, examine the underlying issue or challenge. This would also be helpful in planning the budget or determining the potential additional expenses of including SBCC strategy components in the annual action plan.

It is proposed that monitoring and evaluation of the SBCC strategy and its implementation needs to be done by a third-party agency other than the one preparing the entire SBCC strategy. M&E would assess the strategy and implementation on following parameters:

- Show how effective a program has been
- Demonstrate how the project addressed specific behaviour change barriers
- Explain why some changes occurred but not others
- Identify which strategies were most effective and with which target groups
- Understand how the implementation compares to the original plan
- Identify ways to improve reach to the intended target audience
- Inform decision-making on reallocation of resources as needed to improve program delivery
- Identify unique solutions to be replicated
- Make changes to the communications strategy (messages, channels, target audiences)

SPM Nutrition	<p>Define the problem statement for the formative study Monitor and approve the ToR for hiring of Technical Expert Agency to conduct the Formative Research, design and deliver SBCC strategy Conduct procurement and on-boarding exercise for Technical Support Agency Monitor and approve the plan for research design, questionnaire Monitor the development of the SBCC Strategy training and community delivery modules Monitor the development of the SBCC strategy and approve the final report Over see the training of master trainers on the SBCC Monitor the delivery of the SBCC strategy on field Assess and approve the final report of the TSA</p>
APM Nutrition and SBCC	<p>Support in identification of study areas for Formative Research Support in identification of the target groups Facilitate in identification of target behaviour Draft ToR for hiring Technical Support Agency (TSA) to conduct the study Support in on-boarding exercise for TSA Oversee TSA while developing study plan and research design Support TSA in identification, mapping key stakeholders Facilitate meeting with key stakeholders Support in planning and conducting field research Monitor data collection and report documentation</p>

		Monitor the development of the SBCC strategy, training modules and delivery
	SBCC TSA	<p>The SBCC TSA would be responsible for the development of the SBCC strategy and its roll-out in the field</p> <p>Further the SBCC TSA would capacitate and handhold the project team for the implementation of the nutrition activities</p> <p>It would design the approach and methodology for the formative research</p> <p>Conduct multi-stakeholder workshops to assess the situation of nutrition in the state and develop a robust SBCC strategy for bringing desired behavioural adaptation in the target community</p> <p>It would conduct the formative research on-field, develop the SBCC strategy and finalize it based on the stakeholder inputs</p> <p>It would design the SBCC strategy delivery methodologies and IEC materials for the same</p> <p>It would also design the training modules to train the project staff – SPM, APM, DC, BPM, CC, and community cadres – Poshan Sakhi on the SBCC strategy and delivery</p> <p>Further it would conduct pilot for delivery of SBCC strategy</p> <p>It would roll-out the SBCC strategy for the entire project location and handhold the project staff while delivery the SBCC strategy on ground</p> <p>Document the success stories and best practices</p>
	DPM	<p>Facilitate key stakeholder interview</p> <p>Support in planning and conducting field research for formative research</p> <p>Support and facilitate in the implementation of the nutrition activities and the SBCC strategy</p>
	District Coordinator Social (Nutrition, Gender, ESF)	<p>Support in identification of problem statement, target group, and likelihood of the adoption of the potential target behaviour</p> <p>Facilitate in identification of key stakeholders</p> <p>Support in providing regional and contextual understanding of the geography, socio-economical and environmental variable to the study</p> <p>Plan field visits in coordination with BPM and Team Lead</p> <p>Facilitate TSA in conducting field research, data collection and trouble shoot any challenges for the formative research</p> <p>Champion the implementation of the SBCC strategy for the district</p> <p>Conduct training of the project staff on the SBCC strategy delivery and other training related to nutrition</p> <p>Ensure seamless implementation of the SBCC in the district – facilitating demonstrations, SBCC campaigns</p>
	BPM	<p>Support in identification of research area</p> <p>Facilitate in identification of problem statement, target group, and likelihood of the adoption of the potential target behaviour</p> <p>Facilitate field level data collection</p> <p>Coordinate with field functionaries for field research, FGD, key respondent interviews</p> <p>Monitor and trouble shoot challenges in data collection for formative research</p> <p>Ensure that at least one CC in the block champions the nutrition and SBCC activity implementation</p> <p>Monitor the implementation of the SBCC strategy on the field</p>
	CC	<p>Coordinate in identification of research area and target audience</p> <p>Facilitate in organizing meetings for data collection</p> <p>Support in field data collection and research</p> <p>Deliver the SBCC strategy on the field</p> <p>Handholding support to the Poshan Sakhi for delivering the SBCC strategy</p> <p>Regular monitoring and reporting to the BPM on the nutrition indicators and the progress of the SBCC strategy</p>
	Poshan Sakhi	<p>Deliver SBCC strategy on field</p> <p>Mobilize the community during the formative research</p> <p>Motivate the community especially women and adolescent girls for participating in the SBCC and nutrition interventions</p> <p>Conduct training of the target population on the training modules</p>

		Submit regular monitoring reports to the CC and the BPM for progress on the nutrition activities and the SBCC delivery
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4. Component 2- Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems

The greatest challenge to agriculture of the world in the years to come would be to provide adequate food to combat with hunger and malnutrition to the burgeoning population which is projected to become 8.1 in 2030 and over 9.0 in 2050 from the present population of 7.8 billion. Agriculture sector will have to feed more people with scarce water resources, degrading lands and difficult access to energy. The FAO has reported 803 million tons of global cereal requirement in 2025 against the present production of less than 600 million tons, and therefore, the global cereal demand is to increase 1% per year up to 2025. The production will have to be increased by 60-70% by 2050.

The burden of this global challenge would also be observed by the small and marginal farmers in the rural areas. The productivity of cereals and pulses in the state is 1270 Kg/hectares and 693 Kg/hectares which is low than the national average of 2661 Kg per hectares and 841 Kg/hectares¹⁰⁵ respectively. Though Government of Chhattisgarh has laid down concerted efforts under National Food Security Mission, National Horticulture Mission, and has implemented program like Rajiv Gandhi Nyay Yojana for strengthening the input, production and forward linkages for the agriculture sector. There is a need for strengthening and augmenting these interventions to enhance the overall production and productivity of cereals and other agriculture commodities in the state. This would stand in good stead for ensuring nutrition security in the state.

The project envisions to implement a holistic program for developing integrated farming systems, which are more diversified, nutritive and productive, and more resilient to climate change. The model would be anchored on sustainable development and management of the natural resources, which would form the foundation of high productive integrated farming systems. The project would invest into two-fold strategy, first the project would develop community based natural resources for soil and water conservation, this would further be strengthened by intensifying the irrigation support systems. Secondly, the project would develop resilient production systems – agriculture, horticulture, fisheries and livestock. The project would develop multiple models which would strengthen the production of these systems and at the same time strengthen backward and forward market linkages for improved income security.

4.1. Community-Based Natural Resource Management (CBNRM)

Community-based natural resource management (CBNRM) is a people-centered approach to the integration of conservation of the natural resource base (water, soil, land, and local biodiversity) and development to overcome poverty, and maintain the environment sustainability.¹⁰⁶

Under CHIRAAG, the principles of NRM aims to strive for developing, strengthening and fostering the productive and resilient livelihoods and ecosystem pivoted on the strategy of IFS models in the backdrop of Community Based Natural Resource Management (CBNRM). These production systems, supported by effective utilization of natural resources, would promote sustainable nutrition and food security. All the interventions, key activities and sub-activities under the project aim to achieve the PDO of income and nutrition enhancement which will fundamentally rest on the grounds of village development (specific to the interventions planned) and judicious and optimal management of the available natural resources in the community.

NRM revolves around the following core concepts under CHIRAAG

- Scaled up investment in Nutrition Supportive Production System
- Promoting Practices of Climate Resilient Agriculture

¹⁰⁵ "Pocket Book of Agricultural Statistics," Government of India, Ministry of Agriculture & Farmers Welfare, Directorate of Economics & Statistics, 2018

¹⁰⁶ Community Based Natural Resource Management, World Neighbors

- Development of the Natural Resource Base through Strategic Investments across water, soil development and biodiversity conservation.
- Improving Resilience in the small and marginal farmers through Livelihood Diversification following IFS
- Engaging in sustainable and commercially viable Value Chain Development to boost the income and market penetration of potential commodities (including local and indigenous varieties)
- Promoting inclusion of tribal and women population across selected areas
- Community Empowerment through Capacity Building for strengthening, fostering and nurturing the ecosystem created under the project

Water Shed Management and Water Development

CHIRAAG has envisioned to improve the status of water availability through the construction and restoration of the water harvesting structures as water is the kingpin and the fundamental vehicle in achieving the PDO. As the project aims to diversify the crop production and promotes IFS based farming, the availability of water system becomes indispensable for the project success. As the result the project envisages to work towards watershed management and water development to strengthen as well as create water systems across the selected blocks. Following is the rationale towards including NRM in the project:

- On an average, currently **only about 19%¹⁰⁷ of the total cultivation area across the project blocks is irrigated**, while the rest is dependent upon rain
- Moreover, the project locations experience a low annual average rainfall which adversely affects the production quality and quantity
- The farmers in the project locations are unable to uptake double cropping due to lack of assured irrigation facility and thus most of the farmers in the project area are undertaking mono-cropping (only in one season)
- The project aims to leverage the fact that it is working in the tribal dominated area where the ownership of the community managed resources is very high. As a result the project aims to built the community based models for water management which includes plans and practices for efficient use.

Soil Conservation

Soil quality directly affects the quality of farm produce as well as the overall nutrition in the crops. It is crucial that the soil has the right mix of the following; pH, EC, N, P, K, Zn, Fe, Cn, Mn. Currently the status of soil health of the state is poor as a result the project aims to work towards developing the soil health interventions by improving soil organic matter by promoting vermicompost, NADEP composting, green manuring and biofertilizers promotion. Following is the rationale towards including the soil component under CBNRM in CHIRAAG:

- Soil management through vermicomposting improves soil structure and also leads to the generation of higher percentage of both macro and micronutrients Apart from other nutrients, a fine worm cast is rich in NPK which are in readily available form and are released within a month of application.
- As the strategy for implementing “Integrated Food and Nutrition Supportive Agriculture” stands on IFS model, soil health is essential to enhances plant growth, suppress disease in plants, increases porosity and microbial activity in soil, and improves water retention and aeration, all of which are needed for quality production. Application of locally made and external biofertilizers will significantly improve the soil microbial activity which in turn make nutrients available.
- Under NGGB, the govt is supporting bio-manure production under Ghurwa. Further under the Godhan Nyay Yojana the GoCG is giving a thrust to the production of vermi compost through construction of vermicompost pit at each Gothan. The project envisions to foster the government initiatives through community-based models

¹⁰⁷ Based on the data collected from the project locations though DDA

- The NADEP method of composting is another way of quickly digesting available biomass in short period and make it available for the crops within a given frame of time and without any significant additional expense.
- Soil Conservation in NRM under the project envisioned to harness on the following strategies for improving the soil health which is the significant and one of the most crucial component for achieving the PDO:
 - Prevent erosion which is leading to significant loss of top soil
 - Increase in net profitability; more sustainable production systems
 - Reduction of water and wind erosion
 - Increase of the rainfall infiltration Rate
 - Reduction of moisture loss by evaporation and increase in moisture availability
 - Improvement of conditions for germination
 - Increase in organic matter content of the surface soil layer
 - Suppression of weed growth
 - Increase in the capacity of the soil to retain nutrients
 - improved root development and growth, and as a result the absorption of moisture and nutrients by the crop; reduced probability that the crops will suffer from drought.
 - Increased yields; increased production of crop biomass

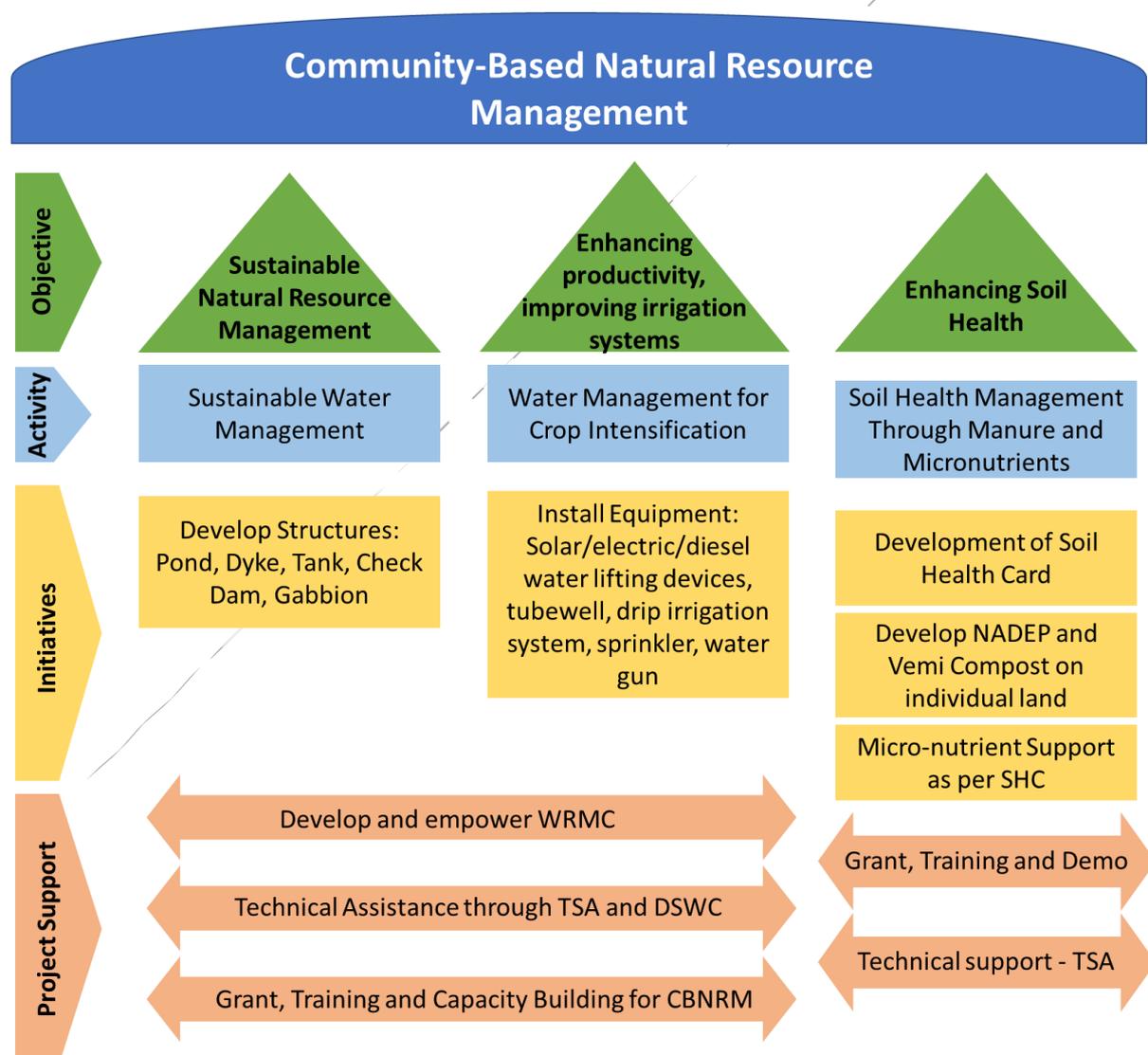


Figure 2: Consolidated activities of CBNRM

4.1.1. Activities to be spearheaded

A. Sustainable Water Management

Net sown area of the Chhattisgarh state is 4.683 million hectares¹⁰⁸ and the gross sown area is 5.561 million hectares¹⁰⁹. It is estimated that about 75%¹¹⁰ of the gross sown area of the state can be irrigated with proper use and management of available water resources. There is wide gap between potential created and actual irrigation in the state is mainly due to:

- Inadequate beneficiary participation in design and maintenance of irrigation projects
- Infrastructure deterioration due to low allocations in maintenance
- Absence of water courses from outlets of irrigation canals to fields

Water deficiency in Chhattisgarh is related to multiple factors such as: high run off in unevenly distributed rainfall areas, presence of some rain shadow areas, and practice of agriculture in upland situations. The state has high inter-block disparity and unevenness in the percentage of irrigated area.

This is especially true for tribal blocks, and remote and high gradient terrain in the rimland. The area under irrigation in the targeted blocks (13 out of 14 are located in the Southern Bastar Plateau) is abysmally low (largely <6%). This calls for a location specific strategy to be spearheaded to enhance the area under irrigation and effective management of the natural resources.

Government of Chhattisgarh has taken multiple successful strategic efforts, like implementation of Narwa for reviving the rivulets and improving the status of irrigation in the state. Water Resource Department has been in the forefront of implementing critical water conservation and irrigation schemes. CHIRAAG envisions to strengthen and augment the steps taken by the government in these directions. The project proposes to focus on development of location specific (based on agro-ecological conditions) community water management structures.

Under the ambit of community water management, the project would develop structures like community pond, major/minor tanks, check dam, community borewell/tube-well. Support would be provided at the community level. The project would provide Irrigation Fund to the Gothan committee based on the watershed management plan.

Objective

The project will build on the State policy on managing surface water (Narwa) i.e., by reviving, conserving and harvesting surface water flowing through rivulets and springs in project villages through rejuvenation of natural water sources, management of water bodies, creation of water retention structures (WRS) including construction of small ponds, diversion and conveyance structures, shallow well and small check dams. Activities will employ modern technologies to use water resources optimally. The project envisions to:

- Promote sustainable management of natural resources
- Increase the area under irrigation
- Enable groundwater recharge, rejuvenation and conservation of water resources
- Promote additional income sources for beneficiaries through effective natural resource management

4.1.1.1. Sub-activities to be spearheaded

¹⁰⁸ Water Resource Department, Government of Chhattisgarh, <http://www.cgwrd.in/organisation/activities/irrigation-potential.html>, accessed on 6 Dec 2019

¹⁰⁹ Ibid

¹¹⁰ Ibid

i. On-boarding of TSA

Community-based natural resource management (CBNRM) is a specialized subject which requires expert knowledge of the science of natural resource conservation and management and professional expertise of community management and empowerment. The TSA would practically empower the community in owning these natural resources and collectively managing it in a professional manner.

Capacitating the community for NRM is an expert task and hence it necessitates to the project to deploy an external Technical Support Agency. However, for ensuring the synergy within the project, the project proposes to hire a single TSA for developing VDP, and CBNRM. The same agency would develop the community-based institution and capacitate them in multiple activities. From the perspective of CBNRM, the TSA would be responsible for:

Developing Natural Resource management module at the time of VDP: It would gather the information from the stakeholders and develop the modules of NRM. Further it would take the approval from the SPM IFS and APM INRM for rolling out the NRM module.

Develop the methodology for conducting participative village planning for the NRM activities: It would design a detailed strategy in tandem with the SPM IFS and APM INRM.

Development of the soil and water conservation structures: the TSA would deploy a District Level Engineer at each 8 districts for leading the development and construction of the soil and water conservation structures at the field level. The district Level Engineer would work in congruence with the Department of Soil and Water Conservation for planning and construction of the NRM structures. It would support the community – CRC (water resource management committee) for effective management of the structures in a scientific and sustainable manner.

Capacitate the project team: for providing the handholding support to the project staff for supporting the community in effective management of the natural resources in a collective manner

Participatory Village Planning

Community-based natural resource management is anchored on the collective and participative planning. Village Development Plan exercise conducted during the initial phase of the project would include the modules of Natural Resource Assessment. The module would be designed to ascertain and measure the existing natural resources in the area – land (FRA or own land), forest (MFP), water resources (ponds, rivulets, check dam, WRS, etc.).

The TSA would implemented multiple tools like transact walk, FGD and others to discuss with the community about their natural resources, understand the status of the resources and map the needs and demands of the community.

Participatory village development plans would be designed for sustainable development and management of the natural resources in the area. Further these VDPs for natural resource development would be aligned with the Village Tribal Development Plans and MGNREGA labour budget. This shall enable the necessary convergence and facilitate landscape area development in the target geography.

Site Selection

To identify intervention sites, the services of the Department of Science and Technology (DST) will be used to access or support the preparation of geographic information system (GIS)-based landscape maps at block level (~5,000 ha/33 km²), using satellite imagery.

The TSA and project staff – SPM IFS, APM INRM, would work in tandem with the Department of Science and Technology for developing the GIS-based landscape maps for effective planning of site selection for the development of the soil and water conservation structures.

CRC Formation and Support

The implementation of CBNRM would be anchored by CRC and LG. CRC would be the higher order community institution anchored on the existing village level institutions – LG, SHG, VO, Gothan Committee, etc. The CRC would collectivise the NRM VDP at the Panchayat level, it would support in formulating a robust strategy for its implementation in congruence with the MGNREGA and VTDPs.

Further CRC would be responsible for appraise and peruse the NRM VDPs. It would also develop a water resource management committee which would work in tandem with the TSA and Department of Soil and Water Conservation for effective planning, implementation and monitoring of NRM VDPs. The water resource management committee would facilitate the TSA and DSWC in developing a democratic plan for NRM, develop soil and water conservation structures like dyke, ponds, check dams, etc.

Further the CRC and water resource management committee would be responsible to manage these structures through community support and collective efforts.

CRC Water Resource Management Committee

CRC would constitute a Water Resource Management Committee for collective and equitable management of the soil and water conservation structures and other NRM activities implemented by the project.

Selection process of the CRC – WRMC:

- The community cadre and CC would discuss the importance and roles and responsibilities of the WRMS within the CRC Executive Committee
- Members of Executive Committee, who are not the group leaders and blood relatives of group leader could nominate themselves as potential candidate for WRMC
- WRMC would be constituted by minimum 4 members, the number may vary based on the regional demand and criticality of NRM activities implemented in the region
- EC shall ensure minimum 40% representation from the SC, ST, Women (an ST woman would meet both the criteria)
- The CC and cadres would support in interview of the WRMC candidates - about their interest, motivation and understanding of the subject matter. Post the interview, a democratic election among EC member would be conducted to select the final committee members

Roles and Responsibilities of the WRMC:

- Facilitating participative planning for the NRM
- Establish convergence among multiple community institutions, government, project staff and PRI for effective implementation of the NRM activities in the Panchayat
- Provide necessary support for construction of the S&WC structures in the Panchayat
- Act as a bridge between the project staff and the project beneficiaries for effective convergence and implementation of the NRM activities
- Ensure that the NRM planning, implementation and management is in congruence with the local cultural and social aspects of the region
- Further it shall be ensuring that the S&WC structures do not affect the local flora and fauna of the region
- In case of any discrepancy with regard to negative implications of the NRM activities in the region, the committee shall flag the matter to the CRC leaders and project staff and ensure corrective action
- Ensure robust, regular and collective management of the Soil and Water Conservation Structures
- Ensure collective monitoring of the NRM activities implemented in the region

Training and Capacity Building

The VDP TSA would also develop CRC and train CRC in developing a community-based approach for appraisal, monitoring and management of the natural resources.

The TSA would have to develop two-sets of modules: one for the internal project resources and cadres. Building the capacity of the project staff for effective implementation of the program and providing handholding support to the community in sustainable management of these natural resources.

Further the TSA would develop training and capacity building modules and delivery tools – flip charts, booklets, films, etc. for the empowering and capacitating the beneficiaries in management of natural resources through a community-based mode. The TSA would train the beneficiaries in democratic decision making for the NRM planning, convergence methods and understanding the roles and responsibilities in the implementation of the NRM plans – construction of the soil and water conservation structures. Further understanding the accountability and play right roles in effective management of these structures – in a collective manner – leveraging the economic and social benefits of collective resources.

Convergence with Department of Soil and Water Conservation

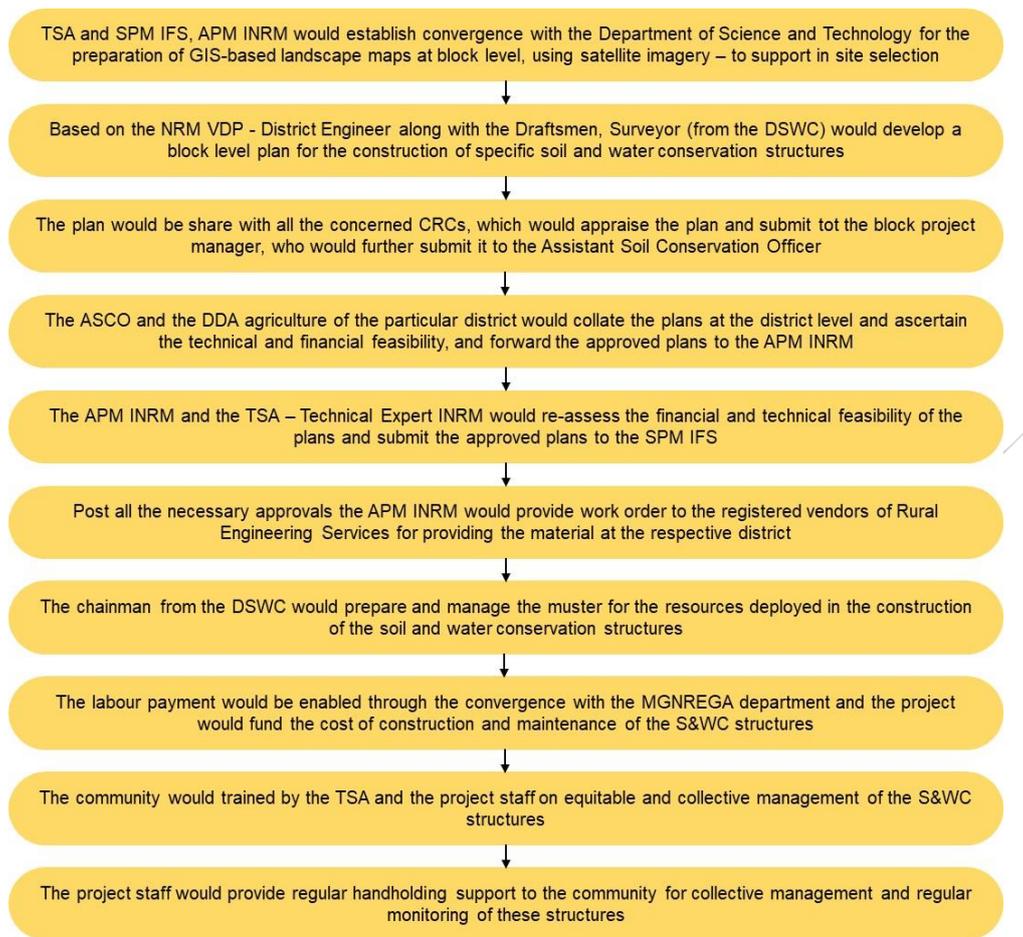
The Department of Agriculture, Farmer's Welfare and Biotechnology has a specialized unit of "Soil and Water Conservation", constituted for prevention of land degradation through adoption of appropriate soil and water conservation measures using the approaches for watershed and 'judicious irrigation'. Further the unit is responsible for the implementation of Centrally sponsored scheme - (IWMP). The unit has been supporting the Government of Chhattisgarh in implementing the projects of soil and water conservation of worth approx. INR 300 Crores, every year.

The project realizes that the state has specialized resources for the implementation of the soil and water conservation programs, and it is being proposed to bolster and leverage the existing resources.

The project proposes to hire specialized TSA – for NRM (mentioned in point – i) which will support the existing district and state level government staff for effective implementation of NRM activities under the project.

Implementation – Roles and Responsibilities of different stakeholders

- The State Project Manager IFS, APM INRM and the TSA would design the detailed policy note for the implementation of NRM activities under the project
- Further the TSA would design the NRM modules for conducting detailed natural resource assessment of the project geographies during the VDP process
- TSA along with the APM INRM would develop a detailed methodology for conducting entry point activities for NRM planning and developing a participative NRM plan
- The TSA along with the APM INRM would develop the NRM training modules for capacitating the staff and cadre on NRM centred VDP
- Further the TSA, along with district and block project team would develop participative VDP, and NRM plans
- TSA would conduct district level workshops to ensure the convergence of NRM VDPs with the Village Tribal Development Plans and MGNREGA planning
- TSA would develop the training modules on training and capacity building of the staff and cadre on the community based NRM implementation, management and monitoring
- Further post planning the implementation would follow the following process:



Beneficiary Selection

- The community water management structures would be developed in the villages for the common usage and collective good
- The structures would be the property of community, and the CRC water resource management committee would manage it
- Construction of the community water management structures would be facilitated based on the watershed management plan and need of the marginal and tribal farmers in the village

Project Support

Potential List of Structures Promoted by the Project

The project envisions to augment and support the existing government programs. It would enhance the existing systems of water and soil conservation and enable effective convergence for enhanced delivery of the programs in the remote tribal areas. The project would support the construction and management of the soil and water conservation structures developed and promoted by the government schemes of Pradhan Mantri Krishi Sinchai Yojana, following is an indicative list of the NRM structure, which would be developed by the project:

- Farm ponds – Lined/Unlined
- Dug out pond – Lined/Unlined
- Traditional Secondary Storage Structures – Diggie, Gokatte, Khadin, Tankas, etc.
- Water storage and harvesting structures – ponds, percolation tanks
- Construction of secondary storage structure with poly lining, protective fence
- Water harvesting system for communities (Check Dam, Micro/Minor Tank)
- Rejuvenation of existing ponds

In order to develop and maintain these waters and soil conservation structures in the rural area the project would provide a grant of 25 Lakhs for each 1000 village. The 700 villages would be covered under the regular activity and 300 would be covered under the CERC component. The funds would be the State Project Management Unit would directly manage the funds. Based on the plans prepared by the CRC the SPMU would provision for the procurement and construction of these structures through the registered vendors delivering services at the village level

Further the project would hire a specialized TSA for providing technical support and guidance on NRM. The TSA funded through the project would also deliver training and build the capacity of the community and project staff for effective implementation and management of the natural resources

Phasing in Strategy

Year	Period	No of Districts	No of Blocks	No. of Villages Covered	% of villages covered*
First	2021-22	-	-	-	-
Second	2022-23	2	3	150	21.43%
Third	2023-24	4	7	350	50%
Fourth	2024-25	2	4	200	28.57%
Fifth	2025-26	-	-	-	-
Sixth	2026-27	-	-	-	-

Cost Table

S.NO.	INTERVENTION	Beneficiary	Input Cost INR - max	PURPOSE OF FUND
1	Sustainable Water Management	CRC and respective LG members	25,00,000/-	Improving water availability and management

In a nutshell, the entire operations would be as per the following:

The proposed structures within this component will be designed not only to harness the water for irrigation but also to mitigate the erosion. The structures shall range from in situ soil and moisture conservation measures would be taken that would reduce the rain off flow, check erosion as well as help in increasing soil moisture.

Based on the experience of other INRM interventions in similar terrain, it is expected that during CHIRAAG Village Development Planning (CVDP) process, the following types of infrastructure are supported that will be planned in consultation with the local community.

Typical structure in a village shall consist of 30 by 40 model, pump dug well, Nallah funding and farm ponds. The total investment shall be around Rs 25 lakh per village. The investment shall cover machinery rental, labour and Material which would account for 30%, 50% and 20% respectively. At a block level it would account for around INR 15 crore. The project would support 8 districts across the state and will cover around 14 block. The total budget for this component would be INR X crore. T

Table 1. Type of structures in a village (Maximum investment = Rs 25 lakh per village)

S. No.	Land type	Type of infrastructure	Size of structure	No of units/village	Unit cost (INR)	Machinery INR (%)	Labour INR (%)	Material INR (%)	Total Investment (INR lakh)
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1	Upland	30 by 40 model	30 ft * 40ft trench	15	40,000	4,000 (10%)	36,000 (90%)		6.00
2	Medium land	Farm ponds (for water storage)	40ft*50ft*6-10 ft	15	70,000	42000 (60%)	28,000 (40%)		11.25
3	Low land	Loose Boulder Structure	Nallah length: 15-30ft * 4 ft height	4	100,000		30,000 (30%)	70,000 (70%)	4.00
4		Dug well (for seepage water storage)	Diameter= 10-15 ft and Depth: 25-40 ft	2	125,000		37,500 (30%)	88,500 (70%)	2.50

Thus the typical investment on different heads for all these different type of infrastructure is summarized below in Table 3.

Table 2: Itemized cost estimate per village

Expense heads	Village level (INR lakh)	Block Level (assuming 60 village/block) – INR Lakh	Percent
Labour	12.60	756	50
Machinery	7.35	441	30
Material (cement, sand, stone)	5.05	303	20
Total	25	1500	

Implementation arrangement

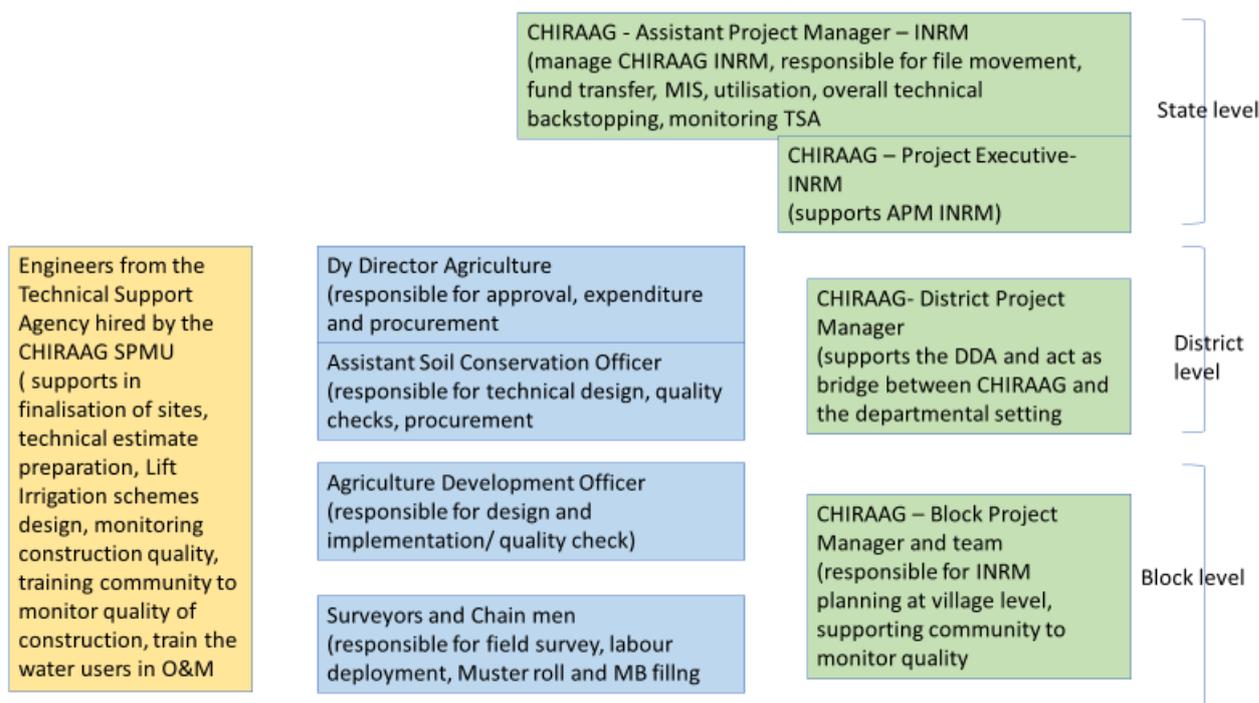
The soil water conservation unit (SWCE) will be implementing unit at the district level and will get coordination support from DPMU and BPMU. The department will be supported by Technical support agency (TSA) who will have 14 engineers (1 for each district) on their board. The TSA will be contracted by SPMU.

The CHIRAAG INRM work at the state level will be managed by Assistant Project Manager-INRM and Environment supported by a Project Executive-INRM. At the district level INRM intervention will be headed by the Dy Director-Agriculture (DDA) who will be closely supported by the CHIRAAG District Project Manager (DPM).

The district agriculture department shall be responsible for planning, survey and supervision of structures. The actual implementation of work would be done by the team headed by Assistant Soil Conservation Officer (ASCO) at the district level supported by Agriculture Development Officer (ADO), surveyors and the chainmen at the block and below. This team would be responsible for all aspects of the work – surveying, labour deployment, procurement of machinery and materials, Quality monitoring, measurement book filing and keeping muster roll. The engineers of the TSA shall also provide support and train community to monitor the quality of works.

Following process will be adopted for planning and implementation.

1. The plan for various structures shall be prepared through CVDPO process, and it will be facilitated by the BPMU and supported by the TSA.
2. Once type of interventions are identified, the technical estimate will be developed by the Agriculture Development Officer (ADO) and surveyors under the supervision of the Assistant Soil Conservation Officer (ASCO). The engineers of the onboarded TSA would also help in site identification as well as in technical estimate preparation.
3. Since value of all structures are less than INR 2 lakh, the Deputy Director Agriculture at the district level is empowered to give technical and administrative sanction.
4. The execution of structures will be done by outsourcing the machinery and labor.



Procurement

TSA: SPMU shall procure TSA and will provide district engineers for INRM implementation.

INRM component shall include procurement items required for implementation of structures which primarily can be categorized in to Labour, Machinery and construction material.

1. **Labour** – the labourers will be engaged from the local area and will be paid a wage rate as per the MGNREGS norms. The local staff of the agriculture department (surveyors) would be responsible for muster roll and payments will be made based on that.
2. **Machinery** – Majority of cases, heavy machinery will be provided through rental of machinery. In a village, the annual cost of Machinery would hard account for around INR 1-3 lakh which would fall in shopping range. The project shall engage these services through shopping method of works following World Bank guidelines. In some cases, where access to hired services may be difficult (due to social and accessibility issues), department shall provide its machinery. In that case the department will go for forced account under which only operational expenditures can be charged to the project such as fuel charges or contract driver. In case driver is employee of GoCH, this charges will not be applicable to the project expenditures.

3. **Construction Material** – The construction material shall include sand, boulders, and cement. The size of package would fall in shopping limit and therefore the department would be able to procure from local vendors following World Bank procedures.

B. Water Management for Crop Intensification and Integrated Farming

The area under irrigation in the targeted blocks is abysmally low (largely <6%). With the objective of improving water-use efficiency, the project proposes to provide the support to the farmers with improved irrigation systems. The project will invest in small water lifting devices, including those based on renewable energy i.e. solar pumps and water conveyance through lay flat pipes, to increase access to water for supplemental irrigation, thereby intensifying and increasing production in kharif or monsoon crops; improved soil moisture to introduce short duration pulses/oilseeds in the rabi or winter season, following conservation agriculture and climate smart agriculture technologies; efficient irrigation technologies i.e. on-line drip irrigation, rain gun sprinklers etc. to facilitate cultivation of nutritive horticulture crops in the winter season or beyond in baadi (individual kitchen gardens). Besides productive usage of water in agriculture, community-based systems will be promoted for community orchards, agroforestry, small scale fishery and livestock rearing activities, as per the VDP. Models supporting group level, rather than individual investments will be promoted for higher community impact including resilience to climate shocks such as drought, using locally proven models and practices.

Objectives

The project envisions to promote small water lifting devices and efficient irrigation systems for improving the overall soil health and enhance production and productivity.

- Enhance the supplemental irrigation support system
- Improve the surface, sub-surface irrigation and enhance water conveyance efficiency
- Crop intensification through improved irrigation support
- Enhance overall soil moisture and health for supporting additional short duration crops
- Increase the uptake of efficient and climate resilient agriculture technology for irrigation, improving the overall efficiency of agriculture production system

Activities to be spearheaded

Participative planning

The NRM module for the participative village planning would cover the assessment of the target community for existing irrigation support systems. As discussed, the penetration of irrigation system in the target geographies is very low approx. <6%, hence the existing system along with the challenges towards access to the irrigation system would be understood. The NRM module would assess both the qualitative and quantitative status and challenges for irrigation support. Further the type of irrigation systems used – drip, water lifting, canal system would be assessed.

The VDPs would also cover the irrigation and water use efficiency systems required for the development of the individual village.

Implementation Strategy and TSA Support

Implementation plan:

- Along with VDP, the community water management plan for the target area would also be developed. It would also provision for water use efficiency structures

- TSA would develop the NRM module entailing the assessment and requirement gathering for the irrigation systems
- The District engineer would play pivotal role in mobilizing the community to adapt the efficient irrigation technologies and develop the irrigation system plan in the VDP
- District Engineer (TSA), Soil conservation staff and surveyor, and community coordinator would support in developing the water management plan
- Based on the water management plan, regional planning would be laid out
- Community members would participate in democratic decision making facilitated by the Community Coordinator and Soil Conservation staff to identify the irrigation systems required meet the needs of the community
- The community members would select the irrigation systems from the pool of – solar/electric/diesel water lifting devices, shallow/medium tubewell, pipe/pre-cast distribution system, drip irrigation system, sprinkler, water gun
- The individual/group of farmers would submit the requisition for irrigation system to the LG
- LG would verify the need and application and submit a list of recommendation to the CC
- Further the CC would submit the application to the BPM, who would compile the list and submit to the DPMU, and accordingly would be forwarded to the SPMU
- The APM INRM would assess the requirements and transfer the funds to the LG for the procurement of the irrigation systems
- The LG would follow the community procurement process for the procurement of the irrigation systems
- Post-procurement the individual/group beneficiary would receive the irrigation systems
- Further the LG would monitor that the beneficiary/beneficiaries is using the systems in a sustainable and efficient manner

Beneficiary Selection

- Farmers/non-farmers having farming land, willing to take up the irrigation support
- **Both Horticulture and Agriculture farmers** would be eligible to take the grant support
- Farmers who have **not received any such similar benefit at individual level**, under any government scheme/program, would be eligible to avail the benefit under CHIRAAG
- It would be a selective exercise the LG group would mutually take a decision based on the first come first serve basis, further the farmers would be given priority based on the following parameters:
 - ST Marginal farmer/farm worker
 - SC Marginal farmer/farm worker
 - Women farmers/farm worker
 - Other marginal farmers/farm worker
 - Other SC/ST farmers
 - Small farmers

Project Support

The irrigation support systems would be (indicative and not executive): solar/electric/diesel water lifting devices, shallow/medium tubewell, pipe/pre-cast distribution system, drip irrigation system, sprinkler, water gun.

- The project would provide one time grant to the LG upto a limit of INR 4,40,790 for the procurement of the irrigation systems. These systems could be given to the individual beneficiaries or at the community level – for a group of farmers
- Further the District Level Engineer would provide handholding support in coordinating with the vendor for installation and management of the device
- The TSA would provide training on efficient use of the irrigation systems

Phasing in Strategy

Year	Period	No of Districts	No of Blocks	No. of Villages Covered	% of villages covered*
First	2021-22				
Second	2022-23	2	4	200	20%
Third	2023-24	3	5	400	40%
Fourth	2024-25	3	5	400	40%
Fifth	2025-26	-	-	-	-
Sixth	2026-27	-	-	-	-

Cost Table

S.NO.	INTERVENTION	Beneficiary	Input Cost INR - max	PURPOSE OF FUND
1	Water lifting equipment	Individual farmer/group of farmers	4,04,790	Improving water use and conveyance efficiency, increase are under irrigation

C. Soil Health Management Through Manure and Micronutrients

Chhattisgarh state has been divided into three agro-climatic zones viz. Chhattisgarh Plains, Bastar Plateau and Northern Hill Regions of Chhattisgarh. The agro-ecological situations of these regions are different and hence, there is variation in the crops and cropping systems of the regions. The local nomenclature of the soils; based on the physiographic situations are different in all the regions. In Chhattisgarh plains, the soils from upper to lower elevations are locally known as *bhata*, *matasi*, *dorsa* and *kanhar*. Similarly, the local nomenclature of the soils of Bastar Plateau zone is known by *marhan*, *tikra*, *mal* and *gabhar*. In Northern Hill Regions of Chhattisgarh, the soils are locally categorized as eroded hilly soils, *dand/tikra*, *dand chawar*, *Chawar*, *bahra* soils and soils of large banded fields. The soil characteristics of all these physiographic locations are different with each other. The salient characteristics of these soils are as follows-

Chhattisgarh Plains

- **Bhata:** It represents about 25% of the zone, generally acidic, possess cementing property; light textured, low WHC, low N, more P fixation, deficiency of some minor nutrients, generally unbanded, erosive in nature.
- **Matasi:** The soils are light-textured, WHC > *Bhata* soil, low fertility, erosive, deficient in N, P and some secondary and micro nutrients are available in low to medium range.
- **Dorsa:** The soils are situated at lower portion, heavy-textured; occupy 15 and 30% area of the zone, respectively, problems of drainage and soil management, comparatively fertile soils.
- **Kanhar:** The soils are heavy clayey, good water holding capacity, having swelling and shrinking properties, poorly drained lowlands, better suited for double cropping under rainfed condition.

Bastar Plateau

- **Marhan:** Located on top, gentle to steep slope, extremely erosive, acidic (5-5.5 pH), light-textured and shallow, gravels and boulders are found, low in fertility and WHC, deficient in N, P and trace elements, K in the range of low to medium.
- **Tikra:** Located below *Marhan* soils, light-textured, physical property and fertility are better than *Marhan*, occasionally banded.
- **Mal:** Medium textured banded soils, soil physical properties and fertility are better than above two, pH 6-6.5, deficient in N and P, medium in K, medium in WHC.

- **Gabhar:** Heavy soils at lowland, drainage is the problem, most fertile soils, neutral pH, N, P and K are in low to medium in range.

Over the period of time due to usage of chemical fertilizers the quality of soil has been degraded. However, in the Bastar Plateau most of the farmers practice organic cultivation, it is indeed imperative to invest in enhancing the soil quality for increasing the production and productivity. Most often the farmers are dependent upon the market for the purchase of organic manure. CHIRAAG envisions to support farmers leverage the scientifically developed organic manure production practices through developing structures like NADEP and Vermi-Compost. At the same time ensure usage of organic manure for sustainable farming.

It aims to provide end-to-end support to the farmers with developing the soil health card for each farmer, to ascertain the soil profile. Further enabling farmers to produce organic manure and based on the SHC administer an appropriate mix of the micro-nutrient and manure in the field for improving the soil quality.

I. Preparation of Soil Health Card (SHC)

SHC is a printed report that a farmer receives for each of his holdings. It contains the status of his soil with respect to 12 parameters, namely N, P, K (Macro-nutrients); S (Secondary- nutrient); Zn, Fe, Cu, Mn, Bo (Micro - nutrients); and pH, EC, OC (Physical parameters). Based on this, the SHC also indicates fertilizer recommendations and soil amendment required for the farm.

For improving the soil quality, it is important to understand the soil profile of the particular field, and ascertain its nutrient requirement. Further, based on the soil profile the farmers can apply manure along with the appropriate mixture of micro-nutrients. The soil health card evaluates the health or quality of a soil as a function of its characteristics, plant and other biological properties¹¹¹. The card is a tool to help the farmer to monitor and improve soil health, and accordingly apply the required manure and micro-nutrients. Government of India and the State Government have been augmenting the scheme of Soil Health Card for supporting the farmers for making an informed decision on the usage of fertilizers and improve soil quality.

Objective

During the year 2017-18 and 2018-19 around 57.5 lakh Soil Health Cards were generated in the state. Though the scheme has achieved a significant progress. However, fundamentally the implementation of the scheme involves sample collection from 10 ha and 2.5 ha of grid for rainfed and irrigated land respectively. Hence, for a state like Chhattisgarh, having around 80% small and marginal farmers, it does not convey the exact measure of the soil health for a particular farmer.

Thus, CHIRAAG envisions to develop an SHC for each farmer. This will enable the farmer to make an informed decision about the accurate application of bio-fertilizers, manure and micro-nutrients.

4.1.1.2. Sub-activities to be spearheaded

Planning

The process of developing SHC would start from the time of CVDP. The TSA would mobilize the farmers the farmer interested in CIHRAAG activities into LG and smaller hamlet-based sub-groups. These farmers would be motivated to avail the benefits of SHC as an individual beneficiary.

Selection of Beneficiary

All the beneficiaries of CHIRAAG, 1.8 Lakh farmers having land ownership would be eligible to avail the benefit of SHC. It would be a one-time support to the farmers.

LG would be responsible for preparing the list of interested and eligible beneficiaries for the village and submit it to the CC and BPM for further process.

¹¹¹https://www.researchgate.net/publication/318638932_Importance_of_soil_health_card_to_sustain_the_living_dynamic_system

Project Support

Grant: The project has provisioned for INR 300/- for the development of the Soil Health Card. Out of this INR 10/- is the incentive for the Kisan Mitra for collecting the Soil Sample from the beneficiary farm land and submitting the sample to the Block Office

Further INR 290/- is for the testing and soil health card printing and distribution

Implementation Process

- APM Agriculture would design the detailed guideline for the implementation of the SHC activity
- The LG would prepare a list of beneficiaries, who are willing to develop the SHC and submit it to the BPM via CC
- The BPM would consolidate the list and submit to the SADO who will direct the RAEO to collect the soil sample of the beneficiary forms
- Kisan Mitra would collect the soil sample from the beneficiary field, under the close supervision of the RAEO
- The samples would be submitted to the Block office by RAEO
- The samples would further be submitted to the Soil Testing Laboratory at the district level, where it would undergo testing under the supervision of the Asst. Soil Testing Officer
- The report of the soil testing would be provided at the CHIRAAG Block Officer, and the BPM would be responsible for disbursement of the SHC on field to the concerned beneficiary
- CC would prepare a final list of the samples collected and submit it to the BPM, who would forward it to the DPM for the payment of incentive of the Kisan Mitra
- The incentive of the Kisan Mitra would be directly transferred from the DDA to the bank account of the Kisan Mitra

Phasing in strategy

Year	Period	No of Districts	No of Blocks	No. of Beneficiary	% of villages covered*
First	2021-22	1	2	10,000	5.56%
Second	2022-23	2	4	50,000	27.78%
Third	2023-24	3	5	70,000	38.89%
Fourth	2024-25	2	3	50,000	27.78%
Fifth	2025-26	-	-	-	-
Sixth	2026-27	-	-	-	-

Cost Table

S.NO.	INTERVENTION	Beneficiary	Input Cost INR	PURPOSE OF FUND
1	Soil Health Card	Individual farmer	290/- to SHC Lab for each soil sample testing and 10/- incentive to the Krishi Mitra for each soil sample collection. Total Cost: INR 1.75 Million	Support the farmers in developing Soil Health Card and getting information about the quality of the Soil

II. Production of Organic Manure and bio fertilisers

Government has laid down significant efforts for reviving the status of organic agriculture in the state and has implemented Narwa Garuwa Ghuruwa and Badi. Under the NGGB program, the state has laid down significant efforts in the establishment of Gothan as daycare centres for the cattle and sustainably manage the excreta of the animal for the production of bio-fertilizers and pesticides. Further the government has fostered the intervention under Godhan Nyay Yojana, where vermicompost pits are established at each Gothan to augment the production of vermicompost, so far vermicompost pits have

been developed in 3247 Gothans. To further the initiative and strengthen the system, CHIRAAG would support in the establishment of NADEP, vermicompost pits and train farmers for production of bio-fertilizers. The initiative would pave the way for self-dependence and ensuring quality organic inputs are available at the village level. Though similar initiatives have already been implemented, it has been observed that often farmers fail to leverage the model sustainably due to lack of technical know-how. CHIRAAG would majorly focus on building capacities of the farmers in the remote tribal areas. Also, regular monitoring through the field functionaries and a specialized pool of community cadre would ensure that the farmer receives necessary support regularly and enable sustainability of the practice. Further, in the case of surplus production at the village level, the farmers can be linked with the forward market like local Haats and Mandis, nurseries, large buyers for additional income generation.

Develop NADEP and Vermicompost on individual land

Government has laid down multiple interventions to promote the farm productivity. On one hand government has supported the farmers in availing Soil Health Cards - detailing the soil status, micronutrient availability and its requirement. During the year 2017-18 and 2018-19 around 57.5 lakh Soil Health Cards were generated in the state. The scheme is critically important to assess the soil composition and guide farmer for effective usage of fertilizers. Further, the state has implementation the visionary scheme of NGGB and Godhan Nyay Yojana, which facilitate the production bio-manures for enabling effective production and improving productivity. The project proposes to scale up the intervention of manure production and enable individual farmers to take up the activity in a sustainable and profitable manner.

Vermi-compost and NADEP construction would be linked with **Integrated Farming systems** to support the **production of Organic Crop**, this will enhance the nutritive value of the commodity and support in **enhancing the consumption of nutritional food**. And at the same time enable the farmers in **achieving the PDO of higher farm income**.

Objectives

The production of bio manure would meet the following objective:

- Making farmers self-reliant for manure
- Promote organic manure to reduce the dependence on the chemical fertilizers
- **Improve the soil health** by increasing the organic carbon content in the soil
- Support enhanced productivity of the crop through improved nutrient supply
- Enable **climate resilience** and sustainable farming through **promoting organic means of cultivation**
- Increased organic practices would **enhance the nutritional quality of the food**

Project Support

The idea is to support development of vermi-compost and NADEP, project would support the farmers in three-fold manner:

- (i) **Funding support for Construction of Vermi-Compost and NADEP:** The project proposes to provide grant to individual beneficiaries interested to develop vermi-compost and NADEP. Beneficiaries would be able to avail the grant from the LG up to a ceiling of **75% of the cost of NADEP/Vermi Compost construction**.
- (ii) **Demonstration, Training and Capacity Building:** To ensure sustainable production of the manure, the project would provision to develop training modules through IGKV and KVK. These modules would cover the **scientific and sustainable practices** manure production through NADEP and Vermi. These trainings would be delivered to the farmers through a ToT manner, through CC, and ARP.
Further **under the IFS implementation strategy, LG would identify farmer for the demonstration of Manure production** through Vermi and NADEP. Farmers in the nearby area

would be able to learn the best practice of manure production through these demonstrations. LG would collectively identify the farmer for demonstration.

- (iii) **Market Support:** LG in close guidance of the CC would support the individual farmers to sell the manure at the local Haat. CC would support in identification of manure need, in the village and panchayat level. **LG could become an aggregation point for the sale of organic manure at the village level.**

Beneficiary Selection

- Farmers/non-farmers having land area available for the development of vermi-bed/NADEP and production of bio-manure
- **Both Horticulture and Agriculture farmers** would be eligible to take loan
- Farmers willing to invest at least 25% of the cost of Vermi/NADEP production
- All the farmers part of CHIRAAG LG would be eligible to take loans
- Farmers who have **not received any such similar benefit at individual level**, under any government scheme/program, would be eligible to avail the benefit under CHIRAAG
- It would be a selective exercise the LG group would mutually take a decision based on the first come first serve basis, further the farmers would be given priority based on the following parameters:
 - ST Marginal farmer/farm worker
 - SC Marginal farmer/farm worker
 - Women farmers/farm worker
 - Other marginal farmers/farm worker
 - Other SC/ST farmers
 - Small farmers

The proposed target for the intervention is 10000 each Vermibed and NADEP in a span of 4 years. The idea is to establish 10 NADEP and Vermi Compost, based on demand, in each 1000 village.

Implementation Plan

- SPM APM Agri would develop the policy for establishment of Vermi Compost and NADEP in the CHIRAAG intervention areas
- APM Agri and Project Executive would develop the SOP guideline for the establishment and practice of bio-fertilizers production through Vermi Compost and NADEP
- Training modules for establishment of Vermi and NADEP would be developed by IGKV and KVK, under supervision of Project Executive Farm. These modules would be reviewed and approved by the SPM Farm and IFS
- Training would be conducted in the ToT mode by the Project Executive Farm to train the project staff at the district, block level- Manager Farm and Value Chain, BPM, Community Coordinator, ARP
- CC would deliver the training to the farmer at field level
- Awareness generation would be carried out by the community coordinator, along with the ARPs at the village level. They will share the detail of the intervention with the CRC and LG members
- The ownership of the intervention will be with the HH; while the BPM will be the person responsible for the entire monitoring of the operation of the intervention
- Farmers interested in the construction of vermi pit and NADEP would submit the application to the LG
- LG would prepare and appraise the list of interested farmers and assess the eligibility. Through a democratic process and discussion among the LG members, prepare a priority list of farmers for availing the benefit
- LG will submit the priority list to the ARP and CC, who would compile the list and submit at the SPMU through the approval of BPM and DPM

- Fund for the construction of the Vermi/NADEP would be transferred from the SPMU directly into the bank account of the LG, based on the approved cases
- LG would be responsible to transfer the funds to the individual beneficiary based on the criteria and phases as defined by the project
- These beneficiaries should be part of the LG or should be mobilized by the CC into the Livelihood Group for effective implementation of the program
- 1 vermibed/NADEP will be installed at every HH of the interested member of LG
- The ARP and CC members would facilitate individual HH according to the schedule planned for construction of NADEP/vermi compost pit, production and sieving of the compost, storing and packing etc.
- The **Civil Engineer of the CVDP TSA** would support the ARP and CC in ensuring accurate design and construction of the NADEP and vermi compost pit for the beneficiary
- ARP and CC would deliver training and demonstration at the farm level for ensuring scientific practices are followed for organic fertilizer and pesticide production
- The farmer would generate revenue through the sale of surplus compost to the LG/CRC members or in the local Haat
- Production of compost, use and sale is the decision of individual HH. In case of converting the intervention into the business model when there is surplus production, the multi-commodity Producer Groups at the block or LG, and CC would support in forward market linkages. LG/PG could also act as a local aggregation point for the sale of manure at the village level
- Monitoring parameters would be developed by the APM and Agri farm, and PE M&E for ensuring that farmers are developing and using the NADEP/Vermi-bed in the scientifically prescribed and productive manner
- BPM would ensure timely monitoring and reporting of the activity

Phasing in Strategy

The program would be implemented at the individual farmer/non-farmer land. Non-farmers can develop Vermi/NDEP for commercial purpose of selling it in the local Haat

Year	Period	No of Districts	No of Blocks	No of NADEP and Vermi Compost
First	2021-22	2	4	4000
Second	2022-23	2	5	7000
Third	2023-24	4	5	7000
Fourth	2024-25	-	-	2000
Fifth	2025-26	-	-	-
Sixth	2026-27	-	-	-

Cost Table

S.NO.	INTERVENTION	Beneficiary	INPUT COST (INR)	PURPOSE OF FUND
1	Vermi/NADEP fund	Individual Farmer – Develop NADEP/Vermi bed	Vermicompost: INR 6,000/- , NADEP: INR 12,000/- - 75% of cost of construction of Vermi Compost bed and NADEP For the budget calculation the unit cost of NADEP and Vermi Compost is being considered as: INR 8,000/- and 16,000/- respectively	The funds would be provided to the individual farmers for the construction of Vermi Compost/NADEP unit at the household level. These funds would be transferred to the LG from the project based on the use cases, and then LG

				would further transfer the same to the farmer
2	Training, Demonstration	Farmers availing grant for Vermi and NADEP construction	Lump sum cost under training	Enhanced capacity of the farmers for production of bio-manure and management of Vermi Compost, NADEP and biofertilisers like Panchagavya and Jeevamrit

III. Micro-nutrient Support as per the Soil Health Card (SHC) Analysis

GoCG has invested in development and distribution of the SHC. Further as the project envisions to scale up the intervention to cover and develop SHC for all the ~1.8 lakh farmers in the project location. SHC would provide information regarding the need of micronutrient for each individual farmer. So far, this information has not been effectively leveraged. The project proposes to **provide support the farmers for the purchase of specific micro-nutrient based on the soil need as per SHC**. Further these **micronutrients would be mixed with the manure produced at the NADEP/Vermi to enhance the manure quality** meeting the specific farm need. The farmers which do not have NADEP/Vermi, would be supported for the purchase of manure through local Haat/nearby farmers, further integrate the same with the specific micronutrient meeting the soil requirement.

Objectives

Production and application of manure and bio-fertilizers alone will not be sufficient to improve the overall health of the soil. As the manure would increase the carbon content of the soil, for ensuring effective soil health enhancement, it is imperative to administer the appropriate dosage of micro-nutrients in the soil.

- Supporting the farmers making an informed decision for the usage of micro-nutrients
- Provide necessary financial support the farmers in procurement of micro-nutrients at appropriate cost
- Enhance the quality of soil, for sustainable food production

Project Support

The idea is to provide necessary financial support to the farmers for procurement of required micro-nutrients.

- Funding support for Construction of Vermi-Compost and NADEP:** The project proposes to provide input fund to the LG (detailed in the section of component 2.2: Integrated Food and Nutrition Supportive Agriculture). It would be a multipurpose fund, availed by the farmers. Moreover, The CHIRAAG beneficiaries as a part of LG would be eligible to avail the loan for the purchase of necessary micro-nutrients from the LG revolving fund (detailed out later) . It would be a soft loan; the interest would be decided by the LG
- Handholding Support:** CC and ARP would provide necessary handholding support to the farmers for understanding the requirement, based on the SHC. Based on the Training Need Assessment, a training module could be designed by the IGKV and KVK, on supporting the farmers to understand and interpret Soil Health Card and ascertain the requirement of micro-nutrients for their soil.
Further the CC and ARP would provide handholding support to the farmers in **preparing the accurate mixture of manure and micronutrients for the farm.**

Beneficiary Selection

- All the project beneficiaries, who are part of LG would be able to avail the loan through LG
- The beneficiary could be an agricultural/horticultural farmer or wife of a farmer with landholding (self/lease (even informal arrangement) /patta)

Implementation Plan

- SPM, and APM IFS would prepare the policy guideline on availing the “LG RevolvingFund” for inputs
- The interested farmers would raise request to the LG
- LG would appraise the requisition based on the democratic process, and prepare a priority list, farmers who have not availed the benefit before would be given priority, along with the SC, ST, and women farmers. Further the marginal farmers would be given priority on the small and large
- Farmers would be able to avail the benefit on need and priority basis, based on the collective decision of the LG EC
- CC and ARP would support the farmers in interpreting the SHC for their land and ascertain the kind of micro-nutrients required for the particular farm
- The CC and ARP would support the farmers in preparing a scientifically appropriate mixture of manure and micro-nutrient for the field and train on its application
- APM Agriculture would prepare a list of indicators to measure the improvement in soil quality
- BPM and CC would support in regular monitoring and measuring the progress of the activity

There would be no specific phasing in strategy for the sub-activity, as the Project beneficiaries would be able to avail the loan on need basis.:

4.2. Integrated Food and Nutrition Supportive Agriculture

4.2.1. Integrated Farming System (IFS)

4.2.1.1. Introduction to the concept of IFS

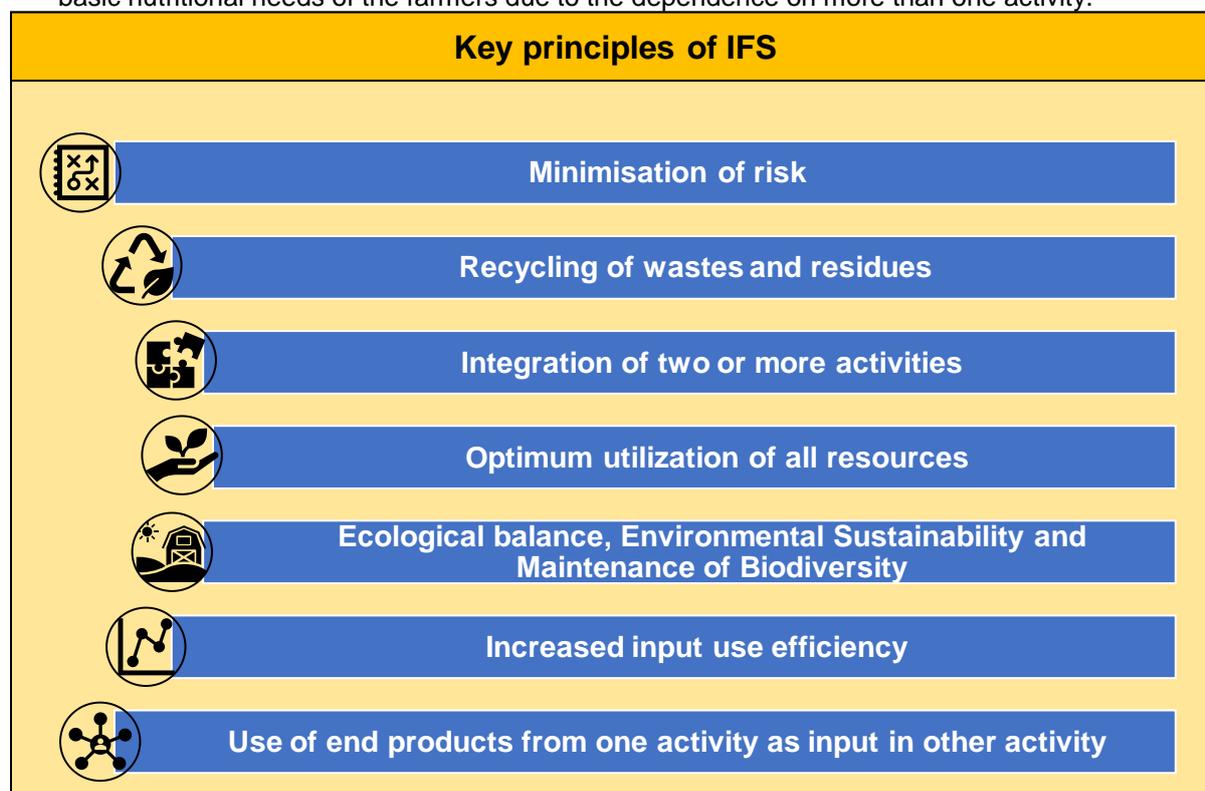
The IFS approach introduces a change in the farming techniques for maximum production in the cropping pattern and takes care of optimal utilization of resources. *Under CHIRAAG, IFS is envisioned as a resource management strategy to achieve economic, nutritional and environmental outcomes through sustained farm production aimed at meeting the diverse requirements of the farm household while preserving the resource base and developing climate resilience.*

A judicious mix of agricultural activities like homestead badi, agriculture production, backyard poultry, piggery, Goatery, fishery, dairying, fodder etc. suited to the local agro-climatic situations and socio-economic status of farmer aims to bring in economic gains along with long term and sustainable nutritional outcomes on the foundation of climate resilience. It involves use of outputs of one activity component as inputs for other related activities wherever feasible, for example, cattle dung mixed with crop residues and farm waste can be converted in to nutrient-rich vermi-compost.

Key Principles of the IFS concept

- **Optimal utilization of resources:** IFS is pivoted on the farming techniques for maximum production in the cropping pattern and takes care of optimal utilization of resources. The farm wastes are better recycled for productive purposes in the IFS.
- **Integration of activities:** There are two or more activities practiced on a farming land.
- **Interdependent activities:** IFS’s activity is focused round selected, interdependent, interrelated and often interlinking production systems based on a few crops, animals and related subsidiary activities. The input in one activity could be derived from an output of another activity. For instance, cattle waste can be used as an effective manure to improve the nutrition cycle of the land for cropping of vegetables/fruits etc.
- **Synergies among different farm activities:** IFS aim at harnessing the complementarities and synergies among different agricultural sub-systems/enterprises and augmenting the total productivity, sustainability and gainful employment.

- **Ecological sustainability:** Combining ecological sustainability and economic viability, the integrated farming system maintains and improves agricultural productivity while also reducing negative environmental impacts.
- **Risk diversification:** The IFS system ensures that farmer is in a better state to manage the risk arising from the failure of one or two activities by falling back on the other activities as a part of the integrated system.
- **Better scope for food and income security:** The IFS system as against the specialized farming system (which focusses on only one activity) paves way for enhanced income and security for the basic nutritional needs of the farmers due to the dependence on more than one activity.



4.2.1.2. Importance of IFS in CHIRAAG

IFS is the Key Strategy to achieve the PDO of income and nutrition for CHIRAAG

- **Income Enhancement:** Since the farmer can undertake multiple activities on its farm and off farm area, the portfolio of its scope of activities increases leading to rise in income from multiple channels. Further the input recycling from one activity to another not only improves the cost dynamics, but also improves the output quality leading to better synergy.
- **Nutrition:** For instance, Nutri-gardening is the comprehensive year-long package of growing nutrient-dense and naturally fortified fruits and vegetables by engaging rural women to enhance diet diversification and improve nutritional status in the household. This activity in integration with backyard poultry where the waste from the gardening can be used as poultry feed and the poultry waste can be used for compost and manure making. Thereby leads to improvements in soil health, rising the nutrient value of crops and thus the nutrition improvement of the farmers HHs.
- **Climate Resilience through IFS:** Climate sustainability is the objective of the farming system where production process is optimized through efficient utilization of inputs without infringing on the quality of environment with which it interacts on one hand and attempt to meet the national goals on the other. In integrated crop-livestock systems, emissions from disposal of crop residues and by-products can be avoided if they are fed to animals, as can the emissions have associated with the production of alternative feed or forages. Emissions from manure storage can also be reduced if the manure is properly applied to crop fields. Planting trees (the intervention of agroforestry under

CHIRAAG) can also sequester carbon sequestration in biomass and the soil, which can also partially or entirely offset greenhouse gas emissions from ruminants.

Objectives of Integrated Farming System under CHIRAAG

- **Productivity-** IFS will provide an opportunity to increase economic yield per unit area per unit time by virtue of intensification of crop and allied enterprises.
- **Profitability -** The system as a whole will pave way for making use of produce/waste material of one enterprise as an input in another enterprise at low/no cost. Thus, by reducing the cost of production the profitability and benefit cost ratio works out to be high.
- **Potentiality –** Soil health, a key factor for sustainability is getting deteriorated and polluted due to faulty agricultural management practices viz., excessive use of inorganic fertilizers, pesticides, herbicides, high intensity irrigation etc. In farming system, organic supplementation through effective use of manures and waste recycling is done, thus providing an opportunity to sustain potentiality of production base for much longer time.
- **Nutritious and Balanced food-** In farming system, since diverse enterprises are involved and they produce different sources of nutrition namely proteins, carbohydrates, fats and minerals etc from the same unit of land, which will help in solving the malnutrition; problem prevalent among the marginal and sub-marginal farming households.
- **Environment Sustainability-** The very nature of farming system is to make use or conserve the byproduct/waste product of one component as input in another component and use of bio-control measures for pest and disease control. These eco-friendly practices bring down the application of huge quantities of fertilizers, pesticides and herbicides, which pollute the soil water and environment to an alarming level whereas, IFS aims to greatly reduces environmental pollution. Also, Higher carbon sequestration in biomass (and soil) and leads to improved soil health through higher availability of biomass for ground cover/mulching purposes.
- **Income Enhancement-** IFS enables cash flow round the year by way of sale of products from different enterprises viz., eggs from poultry, milk from dairy, fish from fisheries, silkworm cocoons from sericulture, honey from apiculture etc. This not only enhances the purchasing power of the farmer but also provides an opportunity to invest in improved technologies for enhanced production.
- **Scope for Value Chain Development-** When the produce from different components in IFS is increased to a commercial level there will be surplus for value addition in the region leading to the value chain development for the potential commodities.

The following figure below, gives a snapshot how the IFS model strategy aims to achieve the Nutrition Improvement and Income Enhancement while catering to function climate resilience.

ACHIEVING CHIRAAG PDO THROUGH IFS

INCOME IMPROVEMENT

- Innovation in farming for maximising production through optimal use of local resources
- Effective recycling of farm waste for productive purposes
- Community-led local systems for water conservation, organic farming, and developing a judicious mix of income-generating activities such as dairy, poultry, fishery, goat-rearing, vermicomposting and others.
- Builds farmer capacities for adoption of productive, remunerative, eco-friendly and self-sustaining integrated farming systems.
- Better conservation of agricultural biodiversity on farms

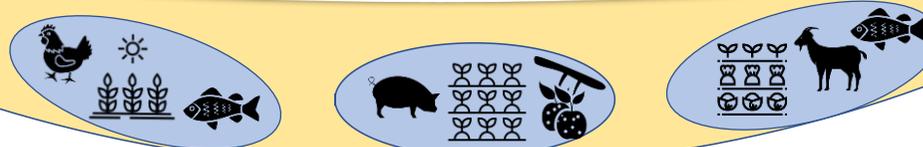
NUTRITION ENHANCEMENT

- Since IFS is a cyclical system, leads to intensified cycling of nutrients, water and energy on farms, thereby increasing profitability by reducing inputs, pollution and waste.
- Improvements in soil health raises the nutrient value of crops, and can lead to better storage, preservation and processing
- Uptake of multiple activities leads to the improvement in household food security, nutrition and the economic status of the family and the community
- Improves dietary diversity through consumption of eggs, poultry and/or meat, and/or leafy vegetable and/or fish

IFS Supports CLIMATE RESILIENCE

- Play a critical role in mitigating greenhouse gases from agriculture, as their emission intensities are typically lower than the sum of those from specialized systems.
- IFS offers farmers a greater number of risk management strategies and options to adapt to climate-induced disturbances than specialized systems.

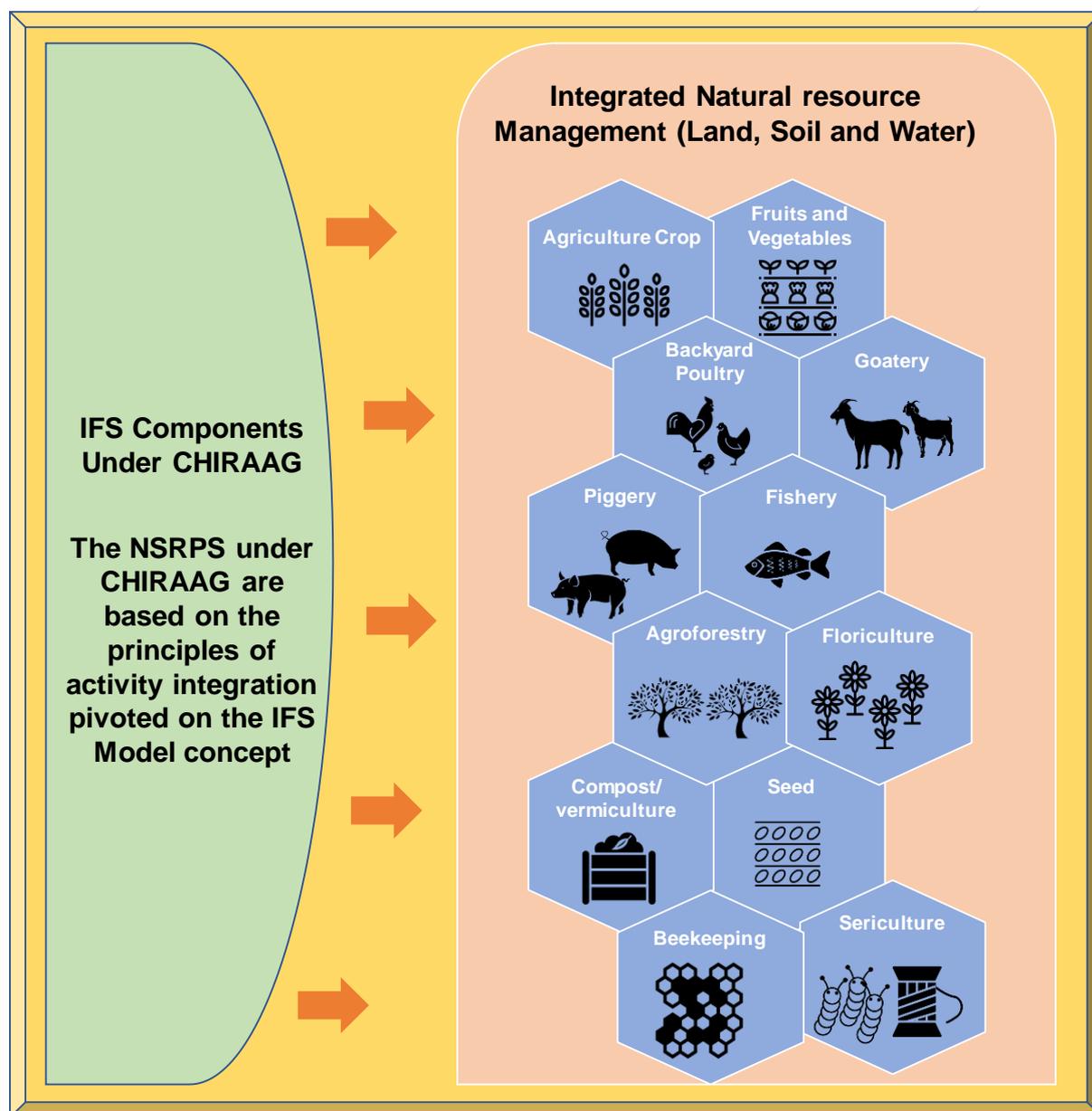
TYPICAL IFS MODELS PROPOSED IN CHIRAAG



4.2.1.3. *Scope of IFS under CHIRAAG*

The components of IFS include crops (including trees), fish farming, poultry, pigs, cattle, sheep and goat, fodder production, kitchen gardening. The feeds derived from “alternative” crops (stylosanthes , roots and leaves of cassava, grasses) require “alternative” farming systems. These are on small scale and are highly productive. These are diversified and integrated and the role of animals in these systems is synergistic rather than as primary producers. Emphasis is on “small” livestock. External inputs can be minimized through waste recycling and growing of nitrogen-fixing and pest-resistant plants in the farming system. IFS models could be developed based on existing production system using concepts and components. Each can stand-alone system but introduction of earthworms as a means of producing organic fertilizer the farm becomes one large efficient unit.

The farm has following subsystems, defining the macro scope of activities as represented below:



4.2.1.3.1. **Farming situations in Chhattisgarh**

Chhattisgarh state has been divided in to three agro-climatic zones viz. Chhattisgarh Plains, Bastar Plateau and Northern Hill Regions of Chhattisgarh. The agro-ecological situations of these regions are

different and hence, there is variation in the crops and cropping systems of the regions. The local nomenclature of the soils; based on the physiographic situations are different in all the regions. In Chhattisgarh plains, the soils from upper to lower elevations are locally known as *bhata*, *matasi*, *dorsa* and *kanhar*. Similarly, the local nomenclature of the soils of Bastar Plateau zone is known by *marhan*, *tikra*, *mal* and *gabhar*. In Northern Hill Regions of Chhattisgarh, the soils are locally categorized as eroded hilly soils, *dand/tikra*, *dand chawar*, *Chawar*, *bahra* soils and soils of large bunded fields. The soil characteristics of all these physiographic locations are different with each other. The salient characteristics of these soils are as follows-

Chhattisgarh Plains

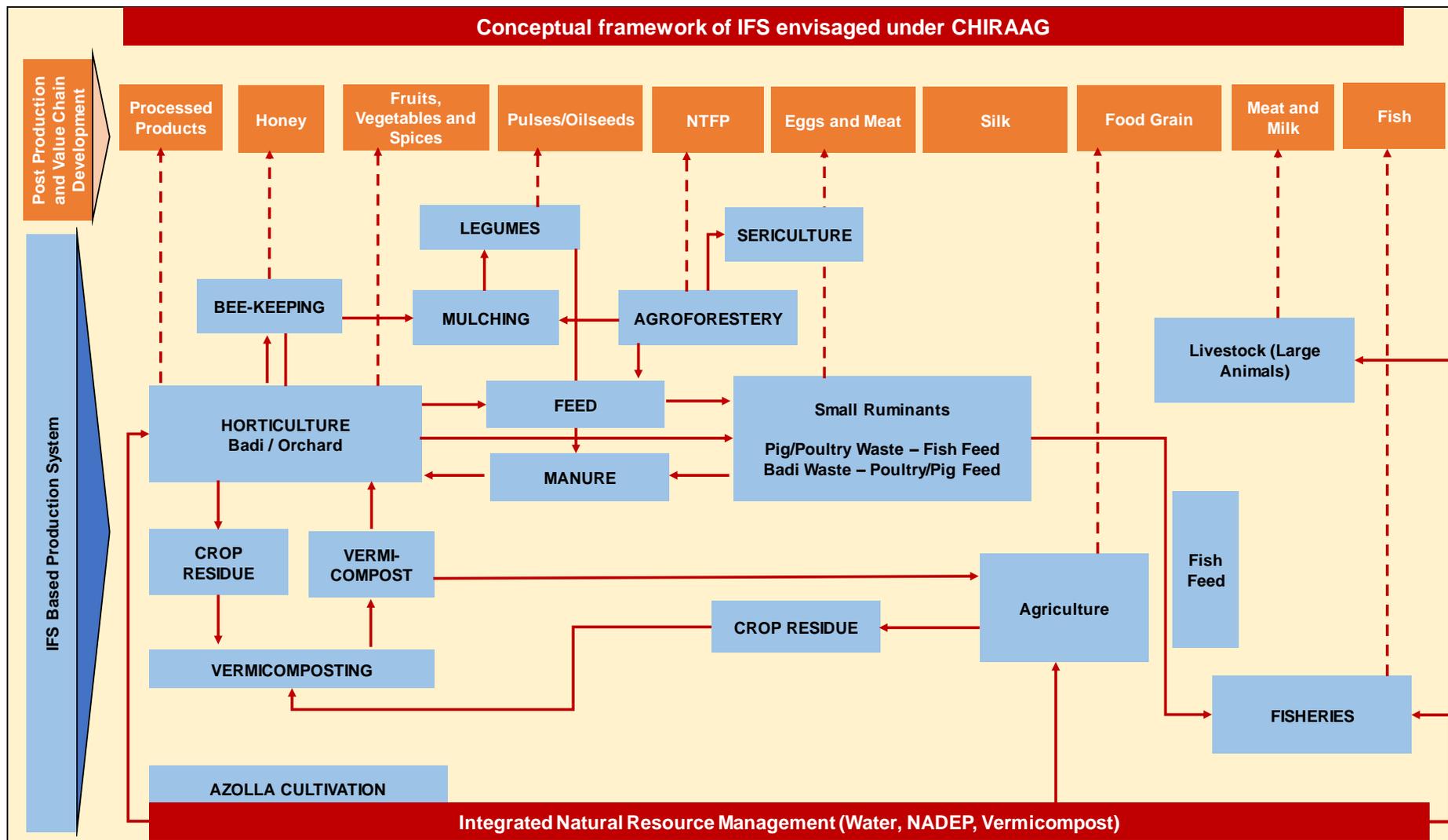
- **Bhata:** It represents about 25% of the zone, generally acidic, possess cementing property; light textured, low WHC, low N, more P fixation, deficiency of some minor nutrients, generally unbunded, erosive in nature.
- **Matasi:** The soils are light-textured, WHC > *Bhata* soil, low fertility, erosive, deficient in N, P and some secondary and micro nutrients are available in low to medium range.
- **Dorsa:** The soils are situated at lower portion, heavy-textured; occupy 15 and 30% area of the zone, respectively, problems of drainage and soil management, comparatively fertile soils.
- **Kanhar:** The soils are heavy clayey, good water holding capacity, having swelling and shrinking properties, poorly drained lowlands, better suited for double cropping under rainfed condition.

Bastar Plateau

- **Marhan:** Located on top, gentle to steep slope, extremely erosive, acidic (5-5.5 pH), light-textured and shallow, gravels and boulders are found, low in fertility and WHC, deficient in N, P and trace elements, K in the range of low to medium.
- **Tikra:** Located below *Marhan* soils, light-textured, physical property and fertility are better than *Marhan*, occasionally bunded.
- **Mal:** Medium textured bunded soils, soil physical properties and fertility are better than above two, pH 6-6.5, deficient in N and P, medium in K, medium in WHC.
- **Gabhar:** Heavy soils at lowland, drainage is the problem, most fertile soils, neutral pH, N, P and K are in low to medium in range.

4.2.1.3.2. Conceptual framework of IFS envisaged under CHIRAAG

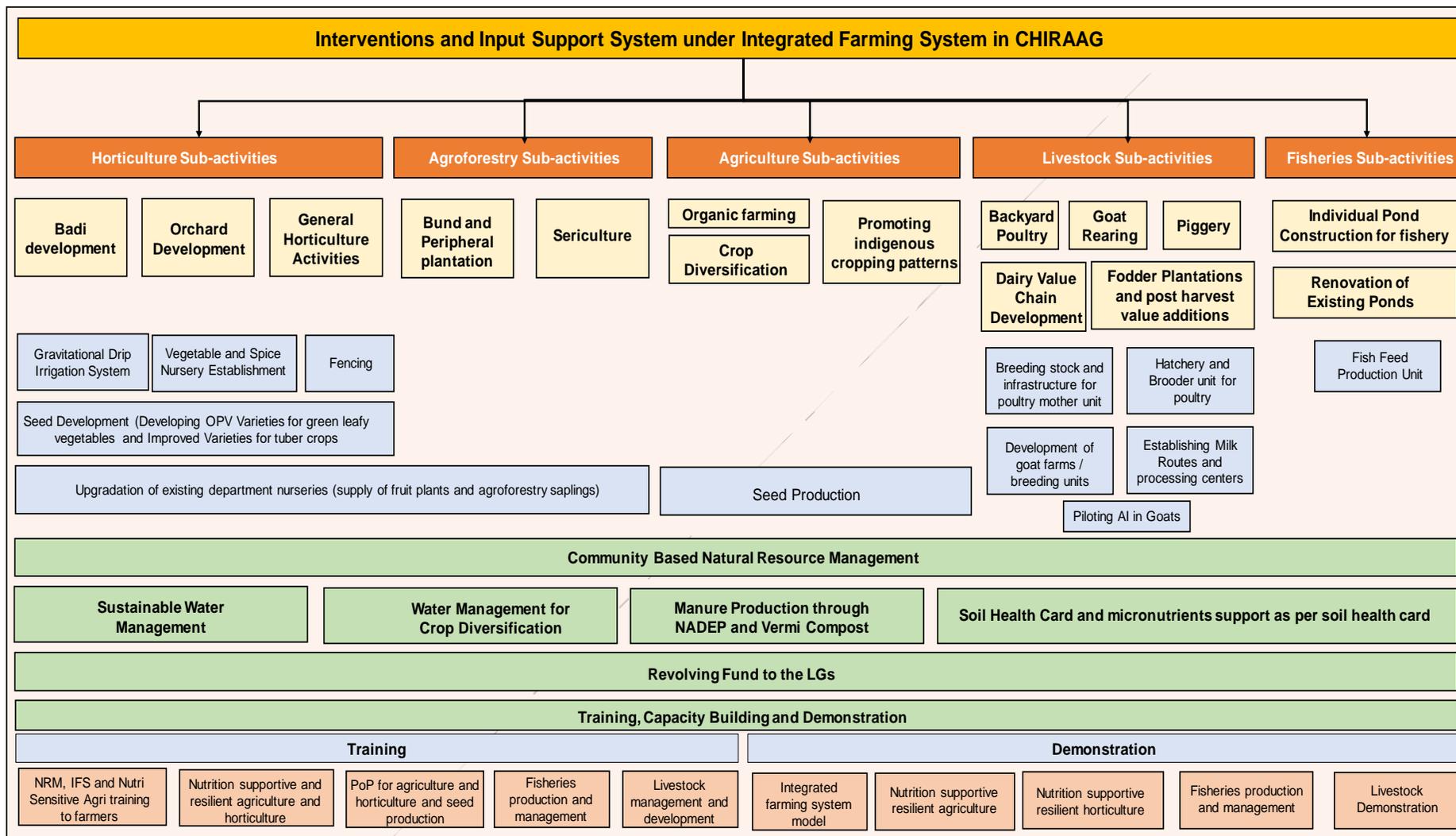
The following diagram below represents the key contours of activities planned under the project, defining how the activities are integrated and interlinked under the IFS system. The conceptual model depicts that how the output from one system becomes an input to another system thereby promoting the overall synergy in the outcome of a typical farm, as envisaged under the project.



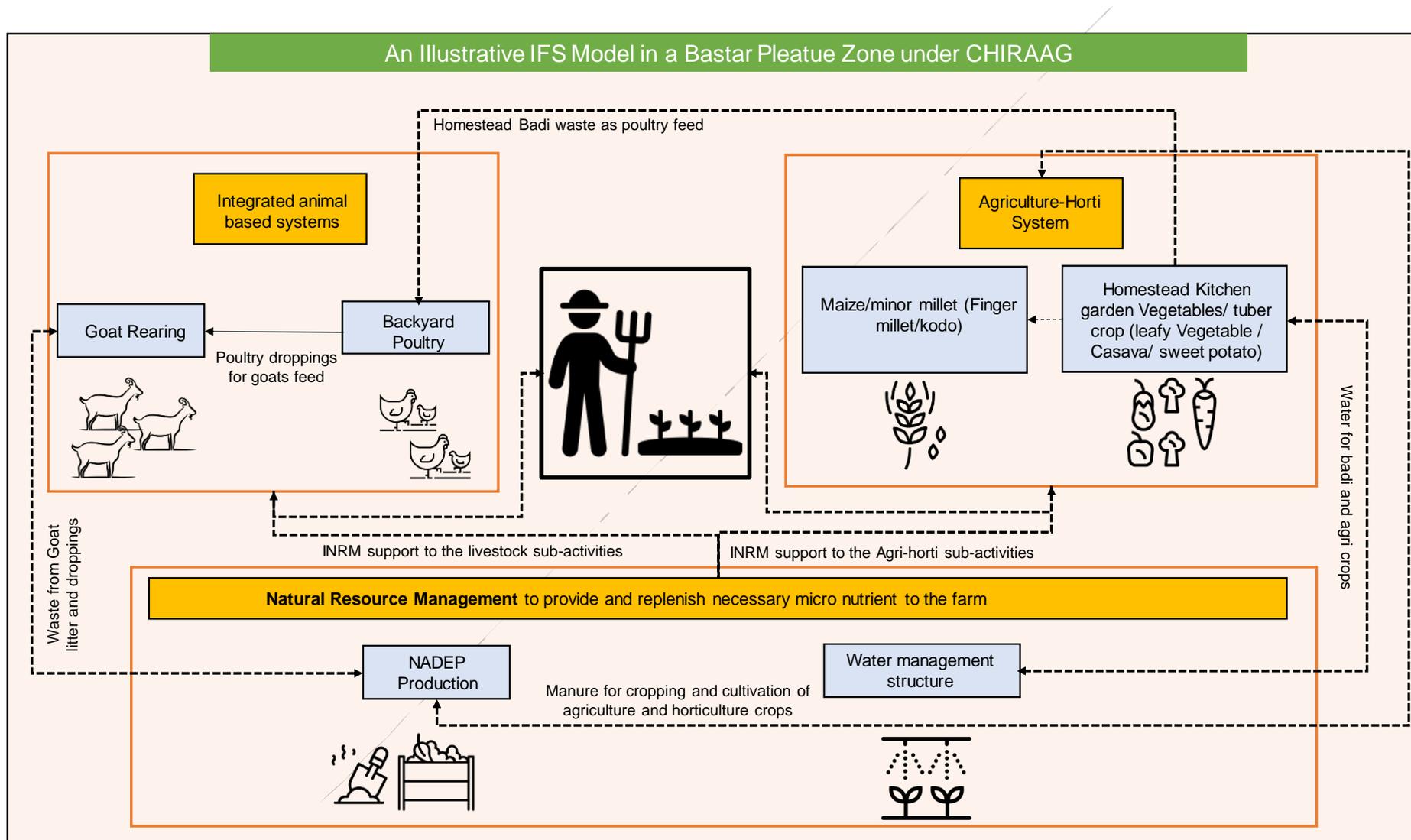
4.2.1.3.3. Sectors and sub-sectors in the project

The following figure below, gives a snapshot of the key activities/components that will be leveraged by the project as the sub-set to be practiced under the IFS model.





4.2.1.3.4. An illustrative model of linkages of various system under IFS



4.2.1.4. *Development of IFS model under CHIRAAG*

The Based on sustainable integrated natural resource management (as a part of sub-component Community-Based Natural Resource Management), **comprehensive models of integrated farming systems (IFS) will be developed in the project areas**, primarily with the objectives of fulfilling local community demand for year-round availability of nutritious foods, increasing the income sources and meeting the market demand. The various components of IFS will include crop husbandry, horticulture, livestock, fishery, agroforestry, sericulture etc. aligned with the pre-planned categories of intervention.

The project would hire the services of IGKV who would be responsible for **undertaking regional diagnostic study at the Block level** (to be conducted by the KVKs with support of State level officers of IGKV), to identify the potential areas of interventions (across agriculture, horticulture, livestock, fisheries and primary food processing where necessary) in the 14 blocks of CHIRAAG, based on agro-climatic suitability, natural resource endowment and market demand. Based on this study, **IGKV will design and develop IFS models**, provide technical trainings, conducting demonstrations and provide overall implementation support in the project.

Following are the steps for developing the IFS model:

- **IGKV will prepare the guidelines/Standard Operating Procedures (SOPs) for the diagnostic study and IFS planning:** The operations manual that will include details on all the process/guideline regarding the rollout of the diagnostic study.
- **Conducting Block Level Regional Diagnostic informed by Gothan¹¹² Level Data for 14 blocks:** IGKV will undertake the performance of conducting regional diagnostic for the selected blocks, focusing on the landscape of the Gothans in the selected blocks, as per the process outlined in the SoPs. Following will be the micro steps:
 - **Study various indicators;** biodiversity, agro-meteorological, rainfall pattern, soil type, agro-ecological, the farming system and choice of crops currently grown, community practices, interlocking relationship between land-water-forest-livelihood, and such other factors
 - **Collect data from the field in convergence with KVK:** This will include data collection from field, secondary data, as well as connecting and liaising with the existing research centres of the state and national level to collect the necessary data
 - **Analyzing Data:** The collected data will be put to analysis to identify the potential areas for performance of the economic activity
- **Identification and Selection of crop/livestock/seed varieties:** Identification and shortlisting of the agriculture and horticulture crops (for instance the indigenous and nutritious varieties; pulses, cereals, oil seeds, millets, fruits and vegetables etc.); Identify the potential livestock-based activities, which are contextual and has the potential to grow and meet both market need and nutritional requirement etc
- **Developing elaborate IFS models for different project regions:** Based on the key outcomes from the diagnostic study for all the 14 blocks and a preliminary IFS benchmarking study (identifying and studying the key trends of IFS models across various states to bring in best practices and innovative IFS models), the regional/block/cluster level IFS models will be developed by IGKV that will classify and map the assorted activities (Agriculture, Fisheries, Poultry, Goatery, Sericulture, Agroforestry, Beekeeping and such other activities). The activity would entail the assessment of the multiple livelihood models suitable for the project location. The process of strategizing the model for IFS include the following steps:
 - **System Thinking for developing combinations:** Understanding of the structural and functional relationships of current farming systems and identification of constraints to achieving farmers' goals is needed to arrive at the initial set of combinations (Crop + Livestock + Fishery

¹¹² Under the NGGB Program of the State Government, the Garuwa (livestock) program is for protection and improvement of livestock, especially milch cattle through the provision of cattle sheds (Gauthan) in each village. Managed by gram sabha, they would function as 'Daycare centers' equipped with fodder, water, and AI facilities.

+ Secondary Agriculture). The TSA will study the boundaries, linkages, synergies and emergent Properties, acknowledging the 'bigger picture' envisioned under CHIRAAG Project.

- **Confluence of multiple sciences:** The TSA would have to focus on the interdisciplinary approach towards developing the models. Agronomic sciences (crop and horticulture production, animal husbandry) work closely with social sciences (economics, extension, sociology) 'interdisciplinary' sciences (e.g. human geography, landscape planning, natural resource planning) and environmental sciences (climate resilience, biodiversity preservation, sustainability and risk mitigation). The TSA will study these sciences as they cannot be viewed in silos and must be closely interlinked to study the cause and effect in strategizing the prospective models under IFS. This interdisciplinary approach is essential to understand farming in a systemic way.
- **Built on a participatory approach mode:** The TSA will have to integrate the societal actors in research as a critical input to understand ground situations across the targeted blocks. While a major part of this would be done during the regional assessment step, the key insights derived from the stakeholders (A broad range of societal actors; farmers, existing community cadres, extension agents, civil society organizations, associations, etc.) will feed in for shaping the strategy in building the prospective IFS models. For instance, integration between the local and farmers' knowledge with scientific knowledge will be strategized based on the insights derived from the participatory approach, thus fueling reciprocal learning processes as well as for building innovation in the model.
- **Integration of ESMF:** Mitigation measures and good practices identified under the ESMF should be integrated to ensure environmental sustainability.

4.2.1.5. *Strategy for IFS roll out in the CHIRAAG area*

- **Integrating the IFS model prepared by the IGKV during the preparation of VDPs and Micro Plans:** Once the IFS models have been designed and prepared by the IGKV, the CVDP TSA would take these models in the field for the preparation of VDPs and HH level micro plans. These models will be used as a nudging point for the project staff to motivate the community for:
 - Adapt Integrated Farming System
 - Enable crop diversification based on agro-ecological zone-wise suitability
 - Adapt to climate resilient crops and cultivation practices
 - Promote adaption of livestock breeds (goat, pig, cattle) suitable for the agro-ecological condition
 - Adaption of high nutritive and indigenous variety of crops
 - Promote cultivation of indigenous variety of fish, crops
 - Promote mixed cropping and agro-forestry models

The TSA will then form the LGs where the micro plans for the HHs will be prepared, clearly defining which all farmers are willing to uptake the various sub-activities under IFS.

- **Classification of the VDPs activities:** During the preparation of the VDPs there would be some activities mentioned by the HHs will be classified into 2 categories:
 - Activities that are being funded by the project;
 - Activities which are not funded by the project and fall under other general activities related to farming; in such cases, convergence efforts would be initiated with the concerned department.

For the activities to be funded by the project, a consolidated list of key activities and the input fed into the delivery of that activity will be prepared in the section below.

- **Planning for conducting the Demonstration and Training:** After the preparation of VDPs, the department staff and the IGKV TSA would plan for the roll out of the demos;
 - IFS based demos (one in each village, integrating all activities of the IFS model for that village) as well as
 - Specific activity-based demos such as crops, livestock, agroforestry etc as identified by IGKV based on regional diagnostic and model development.
- **Financing of the LG members:** There would be two routes for financing; either from LG revolving fund or through grants to individuals through LG. It is pertinent to note that each HH to be recipient of max two grants from LG

In a nutshell, the CHIRAAG strategy for IFS is two fold. Firstly to develop some IFS models and demonstrate them in the field in every village over a period of 3 years. This will help community to see, understand and internalize the various facets of IFS. As per the IGKV design each IFS model would suggest taking up of different crops and animal husbandry practices in a particular zone. In sync with the suggestion, project will organize trainings and demonstration around those crops and practices (badi, agriculture, horticulture, livestock, fisheries, agro forestry, etc) in every village. For adoption of the IFS model, fully or partially, by the community- the strategy to be adopted by the project would be to a> streamline inputs for different practices- be it seed, saplings, poultry chicks, animals or fish fingerlings, training and handholding support to the LG members, grant to LG members to take up atleast two of the activities as proposed in the IFS followed by a revolving fund at the LG level which would enable LG members to take up adopt more number of practices.

Sub-activities under IFS	Input Support	Objectives of the particular activity
Horticulture-based sub-activities		
Individual Badi Development	Support for individual badi development	Grant in form of inputs to all HHs in LG
	Gravitational Drip Irrigation System	Irrigation efficiency would bring in higher level of production as well as larger area under badi at a HH level
	Vegetable and Spice Nursery Establishment	For streamlining inputs – seeds and saplings
	Upgradation of existing department nurseries (supply of fruit plants and agroforestry saplings)	
	Seed Development (Developing OPV Varieties for green leafy vegetables and Improved Varieties for tuber crops)	
Agroforestry-based sub-activities		
Bund and Peripheral plantation	Upgradation of existing department nurseries (supply of fruit plants and agroforestry saplings)	For streamlining inputs – seeds and saplings
Agriculture-based sub-activities		
Organic farming	Seed Development	For streamlining inputs – seeds
Crop Diversification		
Promoting indigenous cropping patterns		
Livestock-based sub-activities		
Backyard Poultry	Breeding stock and infrastructure for poultry mother unit	Enhancing production of stock

	Hatchery and Brooder unit for poultry at FPO level leading to distribution of quality chicks to LG members	Grant to LG members as inputs leading to asset creation
Goat Rearing	Development of goat farms / breeding units including Piloting AI in goats	Streamlining easy availability of quality breeds
	Support families with one female goat	Grant to LG members as inputs leading to asset creation
Pig Farming	Setting up Pig breeding Farms	Streamlining easy availability of quality breeds
Fodder Plantations and post-harvest value additions	TSA for Fodder Development	To bring in expertise on fodder, demonstrating some of the models for farmers to adopt
Individual Pond Construction for fishery	Fish Feed Production Unit + construction of new small ponds + supporting farmers with operational cost for one cycle	To promote fish rearing activity in geographic area where fishery has been identified in IFS
Renovation of Existing Ponds	Renovation of existing water body + supporting fisherfolks with operational cost for one cycle	To strengthen fishery activity with existing fisherfolks
Community Based Natural Resource Management		
Sustainable Water Management		As a overall support to enhance quality of land, access to irrigation, etc
Water Management for Crop Diversification		
Manure Production through NADEP and Vermi Compost		
Soil Health Card and micronutrients support as per soil health card		
Training, Capacity Building and Demonstration		
Training		
NRM, IFS and Nutri Sensitive Agri training to farmers		Training and demonstration along with handholding support to be extended by the community resource persons and the project block team would support LG members to initiate and adopt IFS practices and specific PoP
Nutrition supportive and resilient agriculture		
Nutrition supportive and resilient horticulture		
PoP for agri and horticulture		
PoP for seed production (agriculture)		
PoP for seed production (horticulture)		
Fisheries production and management		
Livestock management and development		
Relevant trainings identified under the ESMF such as Pest and Nutrient Management, waste management, good aquaculture practices etc.		
Demonstration		
Integrated farming system model (1ha/village)		
Nutrition supportive resilient agriculture		
Fisheries production and management		
Livestock demonstration (2 per village)		
Nutrition supportive and resilient horticulture		
Integration of mitigation measures and good practices identified under the ESMF in demonstrations		
Financial support to LG members		
Revolving fund at LG		The revolving fund at the LG members would help members to access finance for inputs to initiate and adopt the IFS models in their respective farms (at least in small patches initially and then scaling it up)

4.2.1.6. *Implementation of IFS in CHIRAAG*

IFS implementation in the project is focused on developing capacities of the farmers for adapting and practicing integrated systems for agriculture, horticulture, livestock, fisheries. Further the farmers would be motivated to adapt to climate resilient and nutrition supportive production practices.

The implementation of the IFS model in the project is anchored on the bi-fold approach of training and demonstration. The project would also support exposure visits of the project staff and farmers to increase the exposure and at the same time bring best practices to the state.

4.2.1.6.1. **Demonstration**

All the directorates of the Department of Agriculture – Horticulture, Agriculture, Livestock, Fisheries would work in tandem with each other and the CHIRAAG project team for effective implementation of IFS demonstrations. The IFS demonstrations would be implemented in integration. IFS strategy would be developed by the SPM IFS and APMs of respective domains – Agriculture, Horticulture, Fisheries, Livestock. Efforts would be made to ensure that the demonstrations and training have seamless flow and minimize the chance of conflicting timelines.

Selection of the farmers:

To ensure targeted and effective implementation of the IFS component, it would be prudent to lay down guidelines for the selection of the individuals for the IFS demonstrations. The demonstrations would be conducted on collective farm land

- The participating farmers will collectively have a contiguous patch of land
- Minimum 3 and maximum 5 farmers would be selected for conducting the demonstration (the number may be changed based on the SPM IFS recommendation)

TSA for CVDP, IGKV and other technical TSAs would develop the modules for the multiple IFS demonstrations. IGKV would design the modules for demonstrations and it would be rolled out in the field by the KVK/ IGKV TSA team. Further CVDP TSA would be engaged in preparing the demonstration module for CBNRM and rolling out in the field. These TSAs would work in tandem with the department of agriculture while designing the modules and performing demonstrations on field. Regional diagnostic provide information on the set of modules that would be required to be developed for the IFS demonstrations.

Following modules would be developed by the TSAs for IFS demonstrations, (this list is indicative and not exhaustive, further it would be updated based on the outcome of the regional diagnostic):

1. **Method demonstration:** Method demonstration could be done for agriculture and horticulture crops for training the farmers on new methods of pre-production and production related activities. The method demonstration may also entail training the farmers on climate resilient practices in an agriculture and horticulture. This could also be developed for the demonstration for CBNRM activities like method demonstration for compost production through vermi compost or NADEP.
2. **Technical demonstration:** the module of technical demonstration would be developed for horticulture, agriculture, fisheries and livestock. The technical demonstration s would cover the topics on training the farmers on specific and latest and cost effective techniques production, pest and nutrient management.. Further the livestock and fisheries department may also develop technical demonstrations, example Pashudhan sakhhi could conduct demonstration of poultry rearing.
3. **Crop and varietal demonstration:** these demonstrations would be developed by the IGKV for demonstrating the target farmers on nutria-rich crops, climate resilient varieties. The modules would cover the agro-ecology based crop and varietal models. Though these demonstrations the farmers would be motivated to take up climate resilient – example paddy varieties which require less variety, draught resilient paddy or maize.
4. **Input demonstration:** the project has high focus on improving the soil quality and health. Thus application of right quantity and quality of inputs at the right time is critical. This is a scientific concept which would required specialized demonstration to the farmers to practically understand

the measures and procedures of input application. The demonstration would cover balanced input.

5. **Organic farming and mixed cropping:** the demonstrations would be developed for organic farming, and other agricultural activities on climate resilience. The demonstration module would also include PoP on indigenous crop production, and other selected crop cultivation through organic mode or mixed/multi cropping as identified during the regional diagnostic by IGKV
6. **Livestock demonstration:** the demonstration would cover the effective management practices for livestock rearing – goatry and piggery. The module would demonstrate the best practices for livestock asset management, hygiene and waste management
7. **Fisheries Production and management:** the demonstration would entail practice and methodology for effective management of fisheries and fish pond. The best practices would include the process of fish feeding, fish tank management, seedling management, etc.

The following table illustrates the engagement of the various TSAs and government departments in design and implementation of the demonstration:

Demonstration Module	Development of the Module	Delivery of the Module	Beneficiary
Method demonstration	IGKV, KVK, Directorates of Agriculture, Horticulture	KVK, RAEO, RHEO, Kisan Mitra	Project beneficiary – LG members
Technical demonstration (including CBNRM)	IGKV, CVDP TSA	CVDP TSA, KVK, RAEO, RHEO, Kisan Mitra	Project beneficiary – LG members, CRC members
Crop and varietal demonstration	IGKV, KVK, Directorates of Agriculture, Horticulture	KVK RAEO, RHEO, Kisan Mitra	Project beneficiary – LG members
Input demonstration	IGKV, KVK, Directorates of Agriculture, Horticulture	KVK RAEO, RHEO, Kisan Mitra	Project beneficiary – LG members
Organic farming and mixed cropping	IGKV, KVK, Directorates of Agriculture, Horticulture	KVK RAEO, RHEO, Kisan Mitra	Project beneficiary – LG members
Livestock demonstration	IGKV, KVK, Directorates of Livestock	KVK, AVFO	Project beneficiary – LG members
Fisheries Production and management	IGKV, KVK, Directorates of Fisheries	KVK, Fisheries department field functionaries	Project beneficiary – LG members

4.2.1.6.2. Training

Training and capacity building is the most crucial aspect in the achievement of the CHIRAAG PDO as the successful implementation as well as the sustainability of all the planned interventions rests upon the robustness of the field as well as the project management staff. The project envisages to bring about significant transformation through leveraging the IFSM and thereby improving the income and nutrition of the tribal rural poor. This is set to be achieved through a set of interventions under nutrition supportive and resilient production systems and value chain development that will be implemented through the community groups at the grassroot level. As a result, the progress of the project critically depends on the skills and capacities of the community and project staff at various levels, which are expected to promote, nurture and build the capacities of the groups implementing the planned interventions. Key rationale for its importance in the project includes:

- Capacity building and training will foster a sense of ownership and empowerment, so that community members gain greater control over their own future development.
- It will lead to the systematic roll-out of the project intervention across the various sub-components

- It will ensure the post project sustainability as the community members will be better placed to manage the newly developed practices as well as the infrastructure
- It will create a repository of the knowledge and database on best approach and practices under various project components
- It will build upon and significantly enhance the knowledge and the quality of practices in the community related to farm and off farm management
- It will lead to sensitization and awareness building among the groups and target villages regarding various aspects of climate change, its impact, adaptation and sustenance with the current production systems

Training and capacity building is the most critical aspect to strengthen agribusiness in the state and hence, Government envisages to focus greatly on training the beneficiaries. With limited resources and awareness, most of the farmers have no formal agriculture schooling system. They are pivotal in generating rural prosperity and face challenges which require education and training. It is, therefore, essential to have continual training to create awareness and mobilization of the target beneficiaries to inculcate long term adaptability in consumption habits. It also fosters a sense of ownership and empowerment, such that beneficiaries gain greater control over their future development

Training is one such means taken up actively by the Government of Chhattisgarh to improve the productivity of rural livelihood. This approach helps the farmer to keep abreast of rapidly changing environment, consumer demand, technology, government interventions and most importantly, better-suited methods of farming. Via conducive schemes and engaging knowledge transfer methods, the Government of Chhattisgarh has been able to sustain, diversify and realize the potential of agriculture sectors. While the main objective of training focuses on area expansion, production and productivity enhancement, it also bridges the gap between farms and market by appropriate knowledge programs and creating awareness. Being an agro-economy, knowledge development of farmer is vital for efficient output. Keeping the criticality of training in view, the Government of Chhattisgarh has been very proactive in imparting the same through its primary agriculture and allied pillars.

Agriculture practices are increasingly becoming diverse and modern and, hence gaining expertise is best through recurrent knowledge-based programs. The Department of Agriculture, Government of Chhattisgarh, organizes for scheme related and demand-based training. There are three regional training centres operational in the state at Jagdalpur, Ambikapur and Durg. Besides, the agricultural officers conduct training sessions on general farming practices such as- crop rotation, cropping pattern, seed treatment, disease control, vermicomposting, organic farming, ongoing scheme knowledge awareness, and many more to the farmers in the villages itself. This training program observes a group of 50 farmers with an equal male and female farmer ratio and is conducted over a period of three days. The agricultural officers organize, on an average, such 75-80 training schedules annually. The government also arranges for expeditions for progressive farmers in the state, outside the state and within the districts. Additionally, workshops are organized during farmer-carnivals. To appropriately guide the beneficiaries, Krishi Vigyan Kendra (KVKs) conducts training of agricultural officers. KVKs aims at on-farm testing to assess location specificity of agricultural technologies under various farming systems, frontline demonstrations, capacity development of farmers and extension personnel and provides farm advisories using ICT and other media means on the varied subject of interest to farmers¹¹³. The role of knowledge development is the most crucial factor, and hence in collaboration with SAMETI, the state organizes residential training conducted by scientists and agricultural officers on current topics. SAMETI annually conducts approximately 90 training programmes- 30 for field staff and 60 for beneficiaries. Further, specific scheme related training such as in ATMA, NFSM, BGREI, PMKSY, PMFBY and NMOOP is also imparted by the government.

Since **horticulture** crops can be grown comfortably on a small acreage in short-duration by marginal farmers, there is an increasing preference for horticulture crops in the state. However, this paradigm shift requires a holistic developmental programme. On the aspect of need and method based

¹¹³<https://kvk.icar.gov.in/aboutkvk.aspx>

requirement, the Department of Horticulture, Government of Chhattisgarh, imparts training of existing schemes mainly through KVKs for district level and SAMETI for state-level training programmes. The department has also collaborated with Institute of Horticulture Technology (IHT) for horticulture crops related training. This agency is certified by the Government of India and is also empanelled for the centrally sponsored scheme, Mission for Integrated Development of Horticulture (MIDH). While the government focuses more on exposure visits outside the country, in the state, outside the state and within the district for progressive farmers, they have limited training schedules in the villages. However, the government emphasizes on the learning methodology in the form of workshops held during farmer-carnivals. The scheme also has a separate provision for resource development of gardeners in the state.

Fisheries and aquaculture are a vital source of food, nutrition, employment and income in India. Fish, being an affordable and rich source of animal protein, is one of the healthiest options to mitigate hunger and malnutrition. Foreseeing the immense potential for the development of fisheries¹¹⁴, the Department of Fisheries, Government of Chhattisgarh has rolled out engaging knowledge transfer programs. These programs are designed keeping in view the sustainability, bio-security and environmental concerns, and focusses on productional potential and productivity enhancement. To transform the fisheries sector, as a modern industry with particular focus on new technologies and processes, it is crucial to align the farmers with latest and sustainable fishery practices through appropriate training programs. For this, the government arranges a 10-day or a 3-day training schedule in a fish farm or a training centre. The district officials conduct this training and share profitable and sustainable fish rearing practices and fish pond development process. The state arranges for exposure visits to the government or progressive private fish farms. Additionally, a 10-day outside the state exposure visit is also organized for progressive fish farmers. Further, guest lectures from professors from KVK and College of Fisheries (Chhattisgarh Kamdhenu Vishwavidyalya) are also arranged. Besides, selective fish farmers also get the opportunity to attend training sessions conducted under ATMA scheme.

Although food availability has increased, the financial inability of the poor to purchase food of reasonable quality in adequate quantities is a challenge. **Livestock** production constitutes a very critical component of the state's agricultural economy. It is closely linked to the social and cultural lives of small and marginal farmers and hence ensuring sustainable farming and economic stability¹¹⁵ is a developmental approach of the state as well. The livestock sector is proliferating in the state, and transfer of knowledge has become extremely crucial. While the government is mostly involved in knowledge transfer programs, the scheme related training is occasional. To keep up with the dynamic agricultural scenario, ANAND Extension Education Institute (EEI) and MANAGE facilitate the communication-based training programmes for the officials, which in turn transfer the knowledge to the livestock-keeping households through regular interactions. Since livestock reduces the risks associated with crop production in mixed-farming system, it is critical to prevent and control zoonotic diseases. Hence, to curtail the spread of prevalent diseases in livestock and poultry, the systematic knowledge transfer process is essential. In collaboration with SAMETI, the state conducts training of its officials through the nodal officers. The government has various ongoing schemes through which the training is provided to the officials to spread awareness, such as- Backyard Poultry, Male Goat Distribution, Pig Distribution, Bull Distribution, Service Delivery for Artificial Insemination and Vaccination, and many more. Further, outside the state expeditions are also organized to observe and inculcate the best practices. More than 2000 progressive livestock-keeping beneficiaries are identified for this exposure visit, which happens annually for an average of 5-7 days.

Overall strategy for delivering the training and capacity building program under CHIRAAG

Skilling will support sectoral interventions of the project by identifying core skill gaps of farmer households, project staff and field functionaries and thereby developing skill training curriculum and

¹¹⁴<http://dof.gov.in/sites/default/files/2020-08/AnnexureFrameworktostatesUT.pdf>

¹¹⁵<http://www.fao.org/3/v8180t/v8180T07.htm#livestock%20as%20a%20supplier%20of%20production%20inputs%20for%20sustainable%20agricultural%20develo>

handholding protocols and strengthen skill training delivery system through developing master trainers and trainer partnerships approach. Skill training approaches will target addressing skill gaps through adoption of new practices and improved production behaviors by target households. In this case, skilling will be one of a bouquet of interventions in the sector through the CHIRAAG project, along with ongoing handholding services, improved input supply, access to finance, aggregation of producers and market linkages and such others.

The training modules would be developed based on the outcome of the Regional Diagnostic study. The technical support agencies would be responsible to develop the module design for the respective technical sectors. Further the module design would be lead by the project staff – SPM IFS, APM – Agriculture, Livestock, Fisheries, Horticulture, INRM, Nutrition and SBCC. The training modules would be designed in bifold manner: one for the main devlivery of the training to the beneficiary, second the modules for the master trainer.

The delivery of the training modules would be lead by KVK, TSA and project field functionaries. The project proposes to develop selected project staff as master trainers to deliver the modules to the project beneficiaries. The state level project staff and district coordinators would be developed as master trainer for the respective themes.

The TSA will be responsible for designing and organizing IFS schools for Training of Trainers for building a cadre of Community Resource Persons (CRPs) in the CHIRAAG villages.

Following FAO's Farmer Field School approach, IFS Schools (IFSS) will be designed and established to train producers on INRM, nutrition, horticulture, livestock, fisheries, integrated pest management (IPM), soil health, organic agriculture, and climate smart agriculture (CSA). The IFFS will include support to lead farmers, on-farm technology demonstrations (all sectors), exposure visits and measures for farmer to farmer extension. The TSA will design (a) core concept of IFSS in local context particularly emphasizing the tribal context and gender sensitivities; (b) design the activity schedule, structure, lead farmer concept, farmer to farmer extension context etc. (c) design training tools, guidelines, manuals on multimedia and ICT-based IEC material; and (d) align the training of trainers for CRPs, agri-extension officers with that of IFSS. The CRPs and extension officers will be the recipient of TOTs and will be called master trainers. TSA will leverage partnerships with national/global knowledge agencies, to avail latest approaches for technology adoption. Interventions under this component will improve women's access to technology by developing small-scale, mobile, demonstration-sites specifically for women farmers and farm workers.

- **Organising demonstration for various IFS models:** The TSA will undertake demo for the selected IFS models to train the target beneficiaries in understanding the how the model operates; for instance the waste generated from poultry farming is used as fish feed or/and pig feed and the waste from badi can be used for vermicomposting; all these principles will be taught and demonstrated to the farmers. The delivery method of the demos can be innovated by the TSA, based on the need.
- **Result & Method demonstration for identified crops through Farmer Field School methods:** The TSA will demonstrate proven technologies at farmers' fields, establish pilot scale units (Orchards, Cultivation practices of minor millets and pulses for instance, Badi Floriculture, Seed Development and such others) and mould entrepreneurial acumen among rural poor. These pilot units will set an example for the rest of target beneficiaries in the project area, thereby motivating them to replicate the model
- **Result & Method demonstration for identified livestock models through Farmer Field School methods:** The TSA will also demonstrate proven technologies at farmers' fields and establish pilot scale units (goat farms, backyard poultry, pig farms, fodder units, fish ponds and such others), thereby moulding the entrepreneurial acumen among rural poor
- **Developing Thematic TOTs for crop and livestock-based demonstration:** The TSA will develop an approach for designing and delivering thematic demonstrations across the project locations. While the state agriculture department would also be extensively involved in delivering the thematic demonstrations, the TSA will also develop specified number of TOTs for conducting crop and livestock-based demonstrations which will be further conducted on the field by the master trainers.

Based on the number of TOTs to be developed, the TSA will draft a schedule and timeline for developing the trainers over the project tenure. The TSA will impart training to the trainers at the district and block level.

- **Piloting and creating best practices:** The agency would provide intense support across all the selected blocks/ districts to establish successful IFS models in the State.
- **Designing learning and monitoring system:** From the IFS schools data TSA may produce periodic reports and suggest changes in the practices and program periodically.

Output under this task are as follows

- TSA will create a plan to develop master farmers and community resource persons through IFS schools.
- The TSA will also design the protocols and guidelines for laying various demonstrations (results and methods) following standard principles in the local context. The TSA will also organise and conduct various demonstrations across the project locations. These demonstration sites will be used for conducting the IFS Schools. TSA will take into account location, mobility and time constraints experienced by women farmers through consultations before developing a training schedule.
- IFS demos will be done by the TSA; based on the number of villages (in total 1000 demos will be conducted by the TSA)
- Developing ToTs for Thematic Demos (crop and livestock specific demos)
- Pilots on new/improved technology adoption
- One or more technology adoption by at least 5% of the target HHs across the targeted 14 blocks

Further the Block Project Manager would receive training on generic modules, and s/he may will be developed as master trainer for one of the themes. Similarly CCs would be developed as a master trainer for at least one of the themes and maximum two themes. This would ensure that the block has at least one master trainer for each theme: Institution Building and Capacity Building, CVDP and Social Mobilization, IFS, Agriculture, Horticulture, Livestock and Fisheries, CBNRM, Value Chain Development, Nutrition and SBCC. The selection of the CC as master trainer would be based on following criteria:

- Her/his understanding and interest about the theme
- Her/his performance on the respective training module
- Number of training delivery completed for the particular theme

Further it would be pertinent to note that some of the cadres would be developed as master trainers. These cadre master trainers would deliver training to other cadres for developing their capacities.

With respect to training delivery, it would be done at 4 levels:

Level 1: TSA to Project Staff: the project staff at state and district level would be developed as master trainers for the respective field. For example the SPM IFS, APM Agriculture, APM Horticulture, PE Agriculture, District Coordinator Farm and Value Chain Development

Level 2: Project Staff to project Staff: The project staff at the state and district level would deliver the training to the block level teams to develop master trainers at the block level

Level 3: Project staff to cadres: the project staff at the district, block level would deliver the training to the community cadres for developing them as key trainers who would deliver the training to the project beneficiaries.

Level 4: KVK, Project staff and cadres to project beneficiaries: the project staff – District Coordinator, Block Project Manager, Community Coordinator would deliver the training to the project beneficiaries on field. Also KVK would lead training delivery for technical training on IFS, Agriculture, Horticulture, Livestock, Fisheries.

Key Modules

The training and capacity building will be done across six areas:

- **Module 1: Core IFS training:** This module will cover the training delivery on the following aspects:

- Introduction to the concept of IFSM
- Integration of IFSM with CHIRAAG and its PDO
- The benefits of IFSM and its incorporation with the individual HH plans
- Case studies and best practices of existing IFSM and the success stories

Target Audience: The target audience for this module will include all the key stakeholders (across the institutional architecture, grassroots level field functionaries as well as the target project beneficiaries.)

- **Module 2: Specific PoPs:** The module will cover the details across the practices for the selected commodities across agriculture, horticulture, fisheries and livestock

Target Audience: Farmers, Krishi Mitras, Pashudhan Sakhi, Poshan Sakhi, Existing Community Cadres of BIHAAN, Community Coordinators, BPM

- **Module 3: Climate Resilience Agriculture Practices:** This module will cover the following aspects:

- Introduction to Climate Resilience; impacts and risks
- Risk mitigation strategies across the sectors; agriculture, horticulture, fisheries and livestock
- Key Aspects to be considered while value chain development
- Practices on natural resource and farm management

Target Audience: Farmers, Krishi Mitras, Pashudhan Sakhi, Existing Community Cadres of BIHAAN, Community Coordinators, BPM

- **Module 4: Nutrition Sensitive Production System:** The module will cover all the trainings related to the aspect of nutrition along with each of the key sub-components under this

- Trainings and Capacity Building on Nutrition benefits and its integration across all the key sub-components (Majority part of it will be covered under BCC)
- Trainings and Capacity Building on all key intervention under Nutrition Sensitive Agriculture System
- Trainings and Capacity Building on all key intervention under Nutrition Sensitive Horticulture System
- Trainings and Capacity Building on all key intervention under Nutrition Sensitive Livestock System
- Trainings and Capacity Building on all key intervention under Nutrition Sensitive Fisheries System

Target Audience: Farmers, Krishi Mitras, Pashudhan Sakhi, Existing Community Cadres of BIHAAN, Community Coordinators, BPM, Asst. Veterinary Field Officers, RHEOs, RAEOs, FPO and Value Chain Development Officer, All officers at the district level

- **Module 5: Community Natural Resource Management:** This module will cover key aspects

- Introduction to the community-based water management system
- Management of catchment areas
- Optimized use of water and soil in a catchment area
- Details on components such as participatory approach, gender sensitive, Cost-sharing and empowerment/ownership building, food security and rural development mainstream and such others
- Best practices, success stories and case studies on community water management

Target Audience: Farmers, Krishi Mitras, Pashudhan Sakhi, Existing Community Cadres of BIHAAN, Community Coordinators, BPM, All officers at the district level

- **Module 6: Value Chain Development and Marketing:** This module will cover key aspects related to forward market linkages and development of aggregation, processing and other value addition related facilities

The following table represent the different training modules, and the responsible agency for the development of module and delivery

Sub-component	Key Thematic Areas for Training (indicative)	Trainer module designer and delivery lead
Community Based Natural Resource Management	Water resource management	IGKV, KVK /TSA for CVDP
	Training on Vermi-Composting	
	Soil and other natural resource management	
Agriculture	Training on delivering the PoPs	IGKV, KVK /TSA for CVDP
	Input aggregation	
	Climate Resilient Technology	
	Introduction of various crop models designed for the project	
	Technology Dissemination	
	Training on Agroforestry	
	Training on Soil Health Card Linkages with Gothan	
	Training on Agro-Forestry and Mixed Cropping Plantation	
	Training on Organic Farming	
	Training on collectivization and group formation	
	Training on Seed Farming and Development	
	Training on efficient water use and community water harvesting	
Training on integrating climate resilience with Agriculture management		
	Training identified under ESMF on Pest and Nutrient Management	
Horticulture	Training on Badi Development	IGKV /TSA for Value Chain Development /Training by Private Partnerships
	Training on Nutrition	
	Training on Community Orchard Development	
	Training on agroforestry and mixed cropping system	
	Training on floriculture	
	Training on efficient water use and community water harvesting	
	Training on Seed Farming and Development for OP and Hybrid	
	Training on integrating climate resilience with Horticulture management	
	Training on collectivization, social Mobilization and group formation	TSA for CVDP
	Training identified under ESMF on Pest and Nutrient Management	
Livestock	AI in Goatery	TSA for Small Ruminants
	Advanced AI training for large animal	TSA for Small Ruminants
	Training on Goat farming and management	TSA for Small Ruminants

	Training on Animal Health Care and Productivity	TSA for Small Ruminants
	Training on Backyard Poultry	TSA for Small Ruminants
	Training on Pig Farming	TSA for Small Ruminants
	Training and Demonstration on Post-Harvest Value Addition in Fodder	TSA for Fodder Development
	Training on Developing milk routes	TSA for Dairy Development
	Training on Hatchery Development and Management	TSA for Small Ruminants
	Training on Brooder Unit Development and Management	TSA for Small Ruminants
	Training on collectivization and group formation	TSA for CVDP
	Training on integrating climate resilience with livestock management	IGKV/Intervention Specific TSA
	Trainings identified under ESMF on f biomedical waste management, general hygiene maintenance, safe storage, handling and disposal of medicines, disease management, good housekeeping etc.	
Fishery	Training on sustainable fish cultivation	
	Fingerling production and distribution	
	Training on Fish Feed Production	
	Pond management	
	Training on integrating climate resilience with fishery management	
	Training of environmentally sustainable good aquaculture practice	
Value Chain and Marketing	Activities related to the Post Harvest Management	TSA for Value Chain Development
	Activities related to the primary, secondary and tertiary level of processing	
	Processing of the selected commodities; for instance; Moringa leaves processing, Chironnji processing, marigold processing	
	Sorting, grading and cleaning of grains and other selected crops	
	Forward market linkages; Advisory and information, market linkage/marketing services	
	Market survey and business building and business plan development	
	Training on collectivization and formation of multi commodity FPO and other groups	

Roles and Responsibility of the Stakeholders:

- SPM IFS and APM – Agriculture, Horticulture, Fisheries, Livestock would be responsible for developing the project guidelines on the IFS model
- IGKV would conduct the regional diagnostic which would identify the potential models that could be developed in the CHIRAAG target areas – based on the agro-ecological conditions under the project
- Based on the IFS models identified during the regional diagnostic, the respective SPM and APM would lead IGKV for developing the IFS demonstration and training modules
- Further based on the IFS models, IGKV would develop PoP for the selected crops and crop varieties
- SPM IFS, APM – Agriculture, Horticulture, Fisheries, Livestock would develop the IFS implementation strategy in convergence with the IGKV
- During the CVDP process the village-wise implementation IFS plan would be developed

- DDA agriculture and other respective government functionaries would provide the necessary support required in procurement and fund management for the effective implementation of IFS activities in the project
- The beneficiaries interested in availing demonstration or any other benefit under the IFS model would raise a requisition to the LG, which would be submitted to the BPIU. The BPM and DPM would be responsible to verify the request of LG
- Further the approved requests would be forwarded to the SPM IFS, who would place requisition to the Beej Nigam for providing necessary input material for demonstration of IFS
- Beej Nigam would place order to its selected vendors, who would deliver the requested input at the district DDA office, the respective block BPM would be responsible for transferring the inputs from the DDA office to the respective LGs
- KV would facilitate the demonstration under IFS
- Training would be delivered by the project staff – CC, BPM, District Coordinator, CVDP TSA, KVK to the cadres and beneficiaries
- The BPM, CC, DC Farm and Value Chain, SPM M&E, SPM IFS, APMs would regularly monitor the implementation of IFS and performance of the respective TSAs

4.2.1.7. *Indicative IFS Models for different Agro-Climatic ZS116*

Based on the performance of different crops; consequent upon research findings and one-to-one interaction with the technical personals posted in the different KVKs; an indicative farming system models are proposed for KVKs of each region.

Prospective Integrated Farming System Models based on the three Agroclimatic Zones			
Agro-Climatic Zones	Irrigation and Land Topography	Farmer Type	Prospective Models
Chhattisgarh Plains	Rainfed, Upland	Marginal	Oilseed + pulse + vegetables + flower + fruit/ timber plants + vetiver strip /bund + green fodder + dug well + Cow(2) + Goat(20) + Poultry birds(30) + duck (20) + Nadep pit + Biogas
		Small	Oilseed + pulse + vegetables + flower +fruit/timber plants + green fodder-stylo + dug well + Cow (2) + Goat (15) + Poultry birds (30) + duck (20) + Nadep pit and vermi-culture+ Biogas
	Irrigated Upland	Marginal	Vegetables + On bunds -pulse/ flower/fruit and timber plants + green fodder + tube well and drip system + Cow (2) + Goat (20) + Poultry (20 + Duck (20) + Nadep and Vermi-culture+ Biogas
		Small	Vegetables +On bunds- oilseed /pulse/ flower/fruit and timber plants + green fodder + tube well and drip system + Cow (2) + Goat (15) + Poultry (20) + Duck (20) + Nadep pit and Vermi-culture + Biogas
	Rainfed, Midland	Marginal	Cereal/-pulse/-oilseed + pulse (on bund) + vegetables + flower +fruit/timber plants + green fodder (chari/maize) + Pond + dug well + Cow(2)+ Goat(20) + Poultry birds(30)+ Fish and duck (20) + Nadep pit and Vermi-culture+ Biogas plant
		Small	Cereal/pulse/oilseed + pulse (on bund) + vegetables + flower +fruit/timber plants + green fodder (chari/maize) + Pond + dug well + Cow (2)+ Goat(15) + Poultry birds(30)+ Fish and duck (20) + Nadep pit and Vermi-culture+ Biogas plant
Bastar Plateau	Rainfed Upland	Marginal	Maize/minor millet (Finger millet/kodo) + oilseed (niger)+ pulse (arhar/ kulthi) + vegetables/ tuber crop (leafy vegetable/ radish/ kochai/ Casava/ sweet potato/ cucurbits/ diascorea-yam/ footyam) + flower (marigold/ rajnigandha) + fruit/timber plants(mango/coconut lemon/ drumstick/ guava/ jackfruit/ khamar) + vetiver

¹¹⁶ Dr. S.K. Patil, Dr. J.S Urkurkar, Dr. A.L. Rathore, Dr. K.L Nandeha, Directorate of Extension Services, IGKV, Raipur, CG,

			strips/bund + green fodder-stylo + dug well + cow (2) + Goat(20) + Poultry (30) + duck (20) + Nadep
		Small	Maize/minor millet (Finger millet/kodo) + oilseed (niger)+ pulse (arhar/kulthi) + vegetables/ tuber crop (leafy vegetable/ radish/ kochai/ Casava/ sweet potato/ cucurbits/ diascorea-yam/ footyam) + flower (marigold/ rajnigandha) + fruit/timber plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + green fodder-stylo/gliricidia +shallow dug well+ vetiver strips/bund + dug well + Cow(2)+ Goat(15) +duck (20) + Poultry birds(30) + Nadep pit+ Biogas plant
	Rainfed Midland	Marginal	Rice- pulse + vegetables (leafy vegetable/ radish/ cucurbits/ tomato/ chili/ brinjal) + flower (marigold/ rajnigandha) + fruit/timber plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + green fodder- on bundgliricidia + pond + Dug well+ cow (2) + Goat(20) +duck (20) +fish + Poultry birds(30)+ Nadep
		Small	Rice- pulse + vegetables (leafy vegetable/ radish/ cucurbits/ tomato/ chili/ brinjal)) + flower + fruit plants(mango/ lemon/ drumstick/ guava) + green fodder-maize/cowpea/ gliricidia + pond+ shallow dug well + Cow(2)+ Goat(15) + Poultry birds(30)+ +duck (20) +fish + Nadep pit+ vermi compost+ Biogas
	Rainfed Lowland	Marginal	Rice- pulse + vegetables (leafy vegetable / cucurbits/ tomato/ chili/ brinjal) + flower (marigold/ rajnigandha) + fruit plants(mango/ lemon/ drumstick/ guava) + green fodder- on bund gliricidia + pond +Dug well+ duck cum fish+ cow (2) + Goat(20) + Poultry (30) +duck (20) +fish + Nadep + vermi compost+ Biogas
		Small	Rice- pulse + vegetables (leafy vegetable/ radish/ cucurbits/ tomato/ chili/ brinjal)) + flower (marigold/ rajnigandha) + fruit/timber plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + green fodder +pond + shallow dug well + Cow(2)+ Goat(15) + Poultry birds(30)+ duck (20) +fish + Nadep pit+ vermi compost+ Biogas plant
Northern Hill	Rainfed Upland	Marginal	Maize + oilseed (niger)+ pulse (arhar/ kulthi) + vegetables/ tuber crop (leafy vegetable/ radish/ kochai/ cucurbits) + flower (marigold) + fruit/timber plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + vetiver strips/bund + green fodder-stylo/ gliricidia + dug well+ Cow(2) + Goat(20) + pig (10) + Poultry birds(30)+ Nadep pit
		Small	Maize + oilseed (niger)+ pulse (arhar/kulthi) + vegetables/ tuber crop (leafy vegetable/ cucurbits) + flower (marigold) + fruit/timber plants(mango/ lemon/

			drumstick/ guava) + green fodder + dug well+ vetiver strips/bund +Cow(2)+ Goat(15) + + pig (10) Poultry birds(30) + Nadep pit+ Biogas plant
	Rainfed Midland	Marginal	Rice- pulse + vegetables (leafy vegetable/ radish/ cucurbits/ tomato/ chili/ brinjal) + flower (marigold) + fruit/timber plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + green fodder- maize/sorghum/on bund gliricidia + pond+ Dug well+ cow (2) + Goat(20) + pig (10) + Poultry birds(30)+ fish and duck (20) + vermicompost+ Nadep pit + biogas
		Small	Rice- pulse + vegetables (leafy vegetable/ radish/ cucurbits/ tomato/ chili/ brinjal) + flower (marigold) + fruit/timber plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + green fodder- maize/sorghum/on bund gliricidia + pond+ Dug well+ cow (2) + Goat(15) + pig (10) + Poultry birds(30)+ fish and duck (15) + vermicompost+ Nadep+ biogas
	Rainfed Lowland	Marginal	Rice- pulse/cereal - vegetables (leafy vegetable/ radish/ cucurbits/ tomato/ chili/ brinjal) + flower (marigold) + fruit/timber plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + green fodder- maize/sorghum/on bund gliricidia + pond+ pond+ Dug well+ cow (2) + Goat(20)+ pig (10) + Poultry birds(30)+ fish and duck (20) + vermicompost+ Nadep pit + biogas
		Small	Rice- pulse - vegetables (leafy vegetable/ cucurbits/ tomato/ chili/ brinjal) + flower (marigold) + fruit plants(mango/ lemon/ drumstick/ guava/ jackfruit/ khamar) + green fodder- maize/sorghum + pond+ Dug well+ cow (2) + Goat(15)+ pig (10) + Poultry birds(30)+ fish and duck (15) + vermicompost+ Nadep + biogas
Source: Integrated Farming System Models for Small and Marginal Farmers, Directorate of Extension Services, IGKV			

4.2.2. Nutrition Supportive Climate Resilient Agriculture

4.2.2.1. 4.2.2.1 Objective

Agriculture is the backbone for rural development as more than 68%¹¹⁷ of the rural households in Chhattisgarh are dependent upon agriculture. Agriculture enables two-fold transformation in the process of development through income and food security. The objective of the component is to develop sustainable production systems to increase the income of targeted households, in the selected tribal areas, from the existing level, further leveraging these systems to successfully eliminate hunger and malnutrition.

The above objective of the project will be achieved by focusing on the sub-objectives as follows:

¹¹⁷ "Pocket Book of Agricultural Statistics," Ministry of Agriculture & Farmers Welfare, Directorate of Economics & Statistics, 2018

- Enhancement in agriculture productivity
- Enable conservation, cultivation and production of pulses and high nutritious indigenous varieties of crop
- Ensure environmental sustainability of agriculture production through improving knowledge and climate-resilient technology
- Improvement in the sustainability of the entire food system, from farm inputs to production to marketing and processing to household consumption
- Improving nutrition outcomes, reduce stunting in children
- Promote dietary diversity in adolescent girls and women of childbearing age
- Ensure year-round access to adequate diverse and nutritious food

4.2.2.2. *Approach*

The sub-component will facilitate in creating an **integrated farming system for agriculture development** to transform the rural landscape. The component has a two-fold approach, promote high nutritious indigenous varieties of the crop to tackle food security and improve the nutritional intake at the marginalized and tribal communities in one hand and it aims to improve the production and productivity of agricultural crops in a sustainable manner to mitigate the impact of climate risk on other hand.. Agriculture is the prime source of income and nutrition in rural areas, improving production and productivity would ensure the holistic development of rural households. Increased level of nutrition and disposable income would enable rural communities to drive themselves out of poverty. The component entails promotion of indigenous varieties, this would stand in good stead in ensuring sustainability in agriculture practices. Nutrition supportive resilient production system would support the farmers to improve the production systems that would allow them to increase their income-generation through:

- Conduct a participative community-based planning process – CHIRAAG Village development Program, in each intervention village, to facilitate the identification of interested farmers, their cropping practices, needs, nutritional standards, and aspirations of the community
- Community-based need assessment and planning identify the gamut of services to be offered under the umbrella of nutrition supportive integrated farming systems
- Selection of crops based on according to agro-ecological condition, which maximize the revenue and nutrition intake of the farmers
- Strengthening the institutional structures at the village level, extending the scope of NGGB cell to facilitate the inclusion of beneficiaries and leveraging the economy of scale
- Ensure the availability of necessary inputs and technology at NGGB Resource Centres, it would entail seeds, bio-fertilizers, pesticides, etc., mechanization and other technical inputs
- Improve productivity and quality of produce through capacity building and skill development of different stakeholders participating in NSRA
- Leveraging technology platforms for effective baselining, farm advisory, management, and regular monitoring
- Facilitate local market development – Haat bazar to strengthen the sale of farm produce and bolster the rural economy
- Improve knowledge on markets and increasing revenues from the sales of farm output
- Create an efficient MIS to support adaptive project management and decision making

4.2.2.3. *Implementation of Nutrition Supportive Resilient Agriculture (NSRA)*

The project envisions to adapt the landscape development approach for inclusive and holistic transformation of agriculture leading to nutritional enhancement and income generation in a sustainable manner. Major constraints for Nutrition Supportive and Resilient Agriculture in the state are

- Erratic rainfall and irregular climatic conditions
- Insufficient irrigation facilities

- Lack of Availability of quality inputs for crop production
- Inadequate access to Government schemes supporting agriculture
- The fragmented approach towards benefit disbursal
- Lack of community ownership in the process of development
- Poor awareness of nutrition and health care
- Change in traditional food habits of tribal communities
- Weak institutional structures at the grass-root level
- Insufficient access to financial resources for agriculture
- Lack of Infrastructure for processing, logistics, storage etc
- Lack of adequate soil testing facilities
- Lack of Availability of appropriate Farm machinery
- Inefficient marketing structure and non-availability of alternative markets
- Lack of facilitation in the integration of different value chain players

Thus, adapting to Integrated Farming Systems, the project would enable the diversification of farming and livelihood activities. Though the government has implemented multiple projects under Rashtriya Krishi Vikas Yojana, Fasal Bima, KCC, PM Krishi Sinchai Yojana, etc. most of the projects function in silos. The project entails establishing effective convergence among these schemes and ensure delivery of gamut of services in an integrated manner.

4.2.2.3.1. Activities to be spearheaded

i. Develop diversified, climate resilient and nutrition supportive cropping systems

The focus of developing these cropping systems is to address the ease of access to nutritious food (Nutri-cereals and pulses) that are low cost and has high resilience towards climate change effects. Farmers in the targeted blocks in the CHIRAAG intervention areas have been traditionally practicing organic farming. Further areas of Mainpat produce high nutritious crops like Buckwheat, and Bastar produce Minor Millets, etc. Though farmers have progressively invested into organic, buckwheat, minor millet cultivation, paddy still stands as the top producing crop with 73% Kharif area under paddy cultivation in the selected geographies. This is leading to serious ground water depletion, and deterioration of soil health. Further most of the farmers practice Baisis or Bushening system of paddy cultivation - which causes poor plant population and finally low yield¹¹⁸.

Further, 6 districts being located in North Eastern and South Western regions of Chhattisgarh have very highly agriculture vulnerability, namely, Jashpur, Janjgir-Champa, Korba, Surguja, Raigarh, and Uttar Bastar Kanker¹¹⁹. It is low wheat and maize production per capita, larger proportion of wasteland, very less percentage of ground water and surface water irrigation to net sown area, greater share of agricultural and cultivators main workers to total main workers thus more dependence on agriculture income, etc which makes Jashpur and Janjgir-Champa most vulnerable in Agriculture Vulnerability Index¹²⁰.

According to Dr G.K. Das, head of department, Agrometeorology, at the Indira Gandhi Agriculture University in Raipur, annual rainfall has decreased from the usual 1,400-1,600 millimetres to 1,200-1,400 mm. The change in rainfall pattern has been causing more frequent and intense periods of droughts in the state¹²¹. In 2015, 117 tehsils of the state's 27 districts, 65 tehsils in 2016, and 96 tehsils in 21 districts, in 2017, were declared drought-affected. Some areas in the state are already

¹¹⁸<http://igau.edu.in/pdf/pubdes4.pdf>

¹¹⁹<http://cgclimatechange.com/wp-content/uploads/2019/05/INRM-Vuln-Ass-FINAL-REPORT-CHATTISGARH-min.pdf>

¹²⁰ Ibid

¹²¹<https://india.mongabay.com/2019/04/agriculture-is-taking-the-hardest-hit-of-climate-change-in-chhattisgarh/>

witnessing a depletion in groundwater levels because of over-extraction of water and not enough replenishment due to erratic rainfall¹²².

Further, nutritional levels of the tribal population in the state are poor. Among all the tribes the group that gets most affected are women and children. Although malnutrition is prevalent among all segments of the population, poor nutrition among females begins at infancy and continues throughout the lifetime. The national family health survey conducted in 2015-16 had shown that 37% of children in Chhattisgarh were malnourished. In Bastar, for instance, about 65 per cent of women and mothers between the ages of 15 and 49 years have anaemia, a level public health researcher describe as “alarming”.

Under such circumstances promoting diversified, climate resilient, and nutrition supportive production systems would prove to be effective to cope up with the distress. The farmers can be provided with necessary inputs, advisory, training cum package of practice, water-shed management systems to save water resources and cost of cultivation, especially for small and marginal farmers.

CHIRAAG will also focus on Food and nutrition security along with income generation. The project will support efficient land use-crop-planning, package of practices and awareness-improvement activities. In order to help provide better food security to households, it will also demonstrate technologies for improving productivity and reducing climate risk in paddy and productivity improvement in pulses and oilseeds. It would promote collaboration with public and private partners like Central Rice Research Institute (CRRI), Indian Agriculture Research Institute (ICAR), and Indira Gandhi Krishi Vishwavidyalaya (IGKV) to focus on demonstrating the new varieties suitable for the state. Depending on the agro-climatic zones trail plots/demonstration plots for specific drought and flood tolerance varieties will be advocated to build in best possible opportunities for food security. Similarly, in the upland, it will demonstrate new high-yielding varieties of pulses and oilseeds. Emphasis will be made to collaborate with Research institutes to bring in the best practices for oilseeds and pulses to improve productivity.

The project would promote dual strategy, it would enable crop planning based on - agro-typo climatological factors-based and nutritional requirement of the community in the intervention areas. Enhanced focus would be given on promoting local indigenous varieties for improving bio-diversity and ensuring uptake of ecologically and socially accepted crops for nutritional improvement. This planning would help in mitigating the climatic risk for crop failure and damage and enhance the focus on cultivation of high nutritious crops. The idea is to make farmers self-sufficient for growing crops for enhancing their nutritional intake. The state government has laid down an intensive crop diversification program for diversifying rice in unproductive areas and focus on improving the nutritional standards of the community. CHIRAAG envisions to augment the interventions and foster farm income security and nutritional enhancement.

Objective:

- Enable climate resilient cropping systems and crop diversification
- Promote high yielding varieties of crops in mixed cropping system for income enhancement
- Augment the efforts for scaling up organic farming in the state for sustainable agriculture
- Promote plantation of high nutritional variety of crops to improve the nutritional standards
- Promote cultivation of local indigenous variety of crops
- Introduce agro-forestry, agro-silvipastoral systems for income diversification
- Augment bio-diversity conservation through promoting high yielding indigenous crops

a. Organic Farming

Chhattisgarh is a very rich state - in terms of its diversity and many parts of the state are by default organic. State Government of Chhattisgarh has launched its Organic Mission in September 2013 in three districts viz. Bastar, Bilaspur and Ambikapur which in the year 2014-15 further extended to cover 12 districts of the state. The mission envisages promoting organic farming in the selected districts and

¹²²[bid](#)

building market linkages for the organic produce of farmers. Following districts in the CHIRAAG intervention areas - **Datewada, Sukma, Narayanpur, and Bijapur are being developed as Organic Districts** under the mission. The projects envision to support organic farming the selected clusters through ensuring access to quality inputs, improving the package of practice, building farmer capacities.

CHIRAAG envisions to promote organic farming among the project beneficiaries preferably through developing Organic Farming Clusters.

Supporting the farmers in improving their package of practice for organic cultivation would enable enhanced income through sustainable agriculture. Though the farmers are aware of traditional methods of cultivation in an organic manner, the landscape development approach of CHIRAAG and technical support would amplify the benefits of agriculture and ensure environmental sustainability.

The project proposes to support the farmers in organic crop cultivation, it would support the farmers in a holistic manner:

- Providing Package of Practices for the selected crops
- Support in training and demonstration for organic crop cultivation
- Credit support interested organic cultivators would be allowed to avail loan for the purchase of inputs from the livelihood group that they are part of
- Collective procurement of inputs – sub-group of organic cultivators within the livelihood groups would aggregate the demand and the project staff would support in collective input procurement through the PACS shop
- Market linkages – the livelihood groups would also act as a collection centre for crop aggregation and provide market linkage support
- Farmers would be able to avail the services of cleaning sorting and grading at the FPO level for higher price realization

Climate Resilient Nutrition Supportive Organic Farming:

Augmenting organic cultivation at the larger scale would enable enhanced health and nutritional benefits. Farmers would be able to consume healthy food produced in a sustainable manner. Further within organic agriculture the crops selection would be based on following focus areas:

- Suitable crop and its varieties for the concerned **agro-ecological zones**
- Crops having high **nutritious value** – improved varieties, indigenous varieties
- High **economic value** agriculture
- **Climate resilient** crops

Further the package of practices would be developed for organic crop cultivation for the selected crops. The model would be implemented with the farmers practicing – agriculture and horticulture crops. Farmers would be motivated to adapt organic farming practices. Further attempt would be made to ensure its implementation through **Integrated Farming Systems** models based on the need and case.

Suggestive Crops for Organic Cultivation – Developing PoP (based on Agro-ecological-zones)

	Selection of Crop (indicative)		
Agro-Ecological Zones	Uchhahan Halki Bhumi	Uchhahan Kanhar Bhumi	Bund of Dhan
Central Plains	Maize, Minor Millets, Finger Millet, Moong, Paddy, Turmeric, Ginger, Mahua, Mango etc.	Minor Millets, Pulses – Urad, Pigeon pea, Soybean, Peanuts, Oilseeds – Soybean,	Pigeon Pea, Urad, Lubiya (Barbati), Taro Root (Arvi), Flat Bin (Sem Phalli), Lond Bins (Guar Phalli)
Bastar Plateau	Cereal: Maize, Minor Millets, Finger Millet,	Cereal: Maize, Minor Millets Pulses: Urad, Pigeon Pea	Yam (Jimikand), Pigeon Pea,

	Pulses – Kulthi, Urad, Pigeon Pea, Oil Seeds – Ramtil, Castor Tuber Crops: Tikhur (Curcuma Augustifolia), Cassava, Dioscorea, Bhakarkand, MFP: Turmeric, Ginger	Oil Seeds: Soybean, Peanut, Tuber: Yam (Jimikand), Taro Root (Arvi) MFP: Turmeric, Ginger Other: Cotton	Sesame, Taro Root (Arvi), Khiksi, Lemon Grass, Jatropa, Khas, Kalihari, Fodder, Napier, Maize
Northern Hill	Cereal: Maize, Minor Millets, Finger Millet, Pulses – Kulthi, Urad, Pigeon Pea, Ramdana, Kidney Bean Oil Seeds: Niger Seed (Ramtil), Sesame (Til), Groundnut Tuber Crops: Tikhur (Curcuma Augustifolia), Bhakarkand	Cereal: Maize Pulses: Urad, Pigeon Pea Oil Seeds: Soybean, Peanut, Tuber: Yam (Jimikand), Taro Root (Arvi)	Pigeon Pea, Yam (Jimikand), Lubiya (Barbati), Taro Root (Arvi), Lond Bins (Guar Phalli), Jatropa, Khas, Kalihari, Fodder, Napier, Maize

b. Crop Diversification – Shifting to Non-paddy crops (climate resilient and nutrition supportive varieties)

Around 73%¹²³ of the farmers in the selected geographies practice paddy cultivation. The state has around 10.02 lakh ha upland area which is under paddy cultivation. These areas observe 10-15 days of dry spells in the monsoon season, further due to absence of water stagnation, low moisture holding capacity and low organic carbon, these areas face severe drought. Instead of these challenges around 3-3.5 lakh ha of the upland area is under paddy cultivation – which is an subsistence uneconomical practice. There is a dire need to shift such unsustainable farming practices and ensure economically and regionally appropriate cropping systems. Especially in such upland areas promoting the cultivation of oil seeds and pulses would lead to climate resilient sustainable farming, and higher price realization. Similarly, through crop diversification the idea is reduce the dependency of the farmers on paddy and reduce the ecological burden of mono-cropping.

Further as the Government of Chhattisgarh is implementing NGGB, the establishment of Gothan centres provides an unprecedented opportunity to increase the areas under cultivation in the Rabi season. The project envisions to promote cropping systems based on the four focus areas:

- Suitable crop and its varieties for the concerned **agro-ecological zones**
- Crops having high **nutritious value** – improved varieties, indigenous varieties
- High **economic value** agriculture
- **Climate resilient** crops

The idea is to promote the cultivation of **pulses, oil seeds and especially minor millets** – based on the suitability of the agro-ecological zones as well as mentioned in the IFS model developed by IGKV. Crop diversification would be implemented through **Integrated Farming Method** – further mitigating the climate risk, improving farm income, and enabling enhanced nutrition support. The farmers practicing paddy would be motivated to implement the crop diversification model along with **availing other benefits as – Poultry/Piggery/Fishery**. Along with the **agriculture crops, horticulture crops**

¹²³Agriculture department internal data analysis

would be promoted through diversification. Further attempts would be made to promote climate resilient crops:

Table 1: Table for Climate Resilient Crops¹²⁴

Crop Varieties Suitable for Cultivation Under Different Abiotic Stress	Agro-ecological Zone	Crop	Crop Variety	Source
Drought Stress	Bastar Plateau	Rice	Pradhan, Poornima	IGKV, Jabalpur
	Northern Hills	Wheat	Sujata, C-306, JWS17, HI-8627, HI-1531	IGKV, Jabalpur
	Bastar Plateau	Maize	HQPM-5, HQPM-1	IGKV, Jabalpur
	Northern Hills	Maize	Vivek-21, Vivek-9	Private dealers/sectors
	Bastar Plateau	Finger Millet	VR-708 (Padmavati), HR-374	IGKV / NRC millets Bangalore
	Chhattisgarh Plains	Chickpea	JG-14, Indira Chana, JG-315, JG-11	Private dealers/sectors
	Chhattisgarh Plains	Lathyrus	Mahateoda, Prateek	IGKV farm / Private sector
	Chhattisgarh Plains	Pigeonpea	Rajeev Lochan, Asha, UPAS-120, Paras	IGKV farm / Private sector
	Bastar Plateau	Pigeonpea	Number-148, C-11, Paras	IGKV seed farm/ Research station
	All zones	Fodder Crop	Bundel Anjan-1, Bundel Anjan-3	IGFRI, Jhansi
	Bastar Plateau	Cassava	Shri Sahya	IGKV, Raipur
	Chhattisgarh Plains Zone, Northern Hills	Onion	Agrifound Dark Red, Arka Kalyan	Private sector
Delayed Monsoon	Northern Hills	Rice	Indira Rajeshwari, Vanaprabha, Indira Sona	IGKV, Jabalpur; State Seed Corporation, Chhattisgarh
	Bastar Plateau	Rice	Vanprabha, Annada, Aditya, Samleshwari, Indira Sona	IGKV, Jabalpur; State Seed Corporation, Chhattisgarh
	Chhattisgarh Plains	Rice	Vanprabha, Indira Rajeswari, Indira Sona, Aditya, Danteshwari	IGKV Raipur
	Bastar Plateau	Maize	Hishell	IGKV, Raipur
	Northern Hills	Maize	Prakash, Pusa Hybrid-1, Pro 4212	Private Seed Company

¹²⁴http://www.nicra-icar.in/nicrarevised/images/publications/Tbu_Climat%20Resilient%20Crop%20Varieties%20for%20Sustainable.pdf

	Bastar Plateau	Kodo Millet	Jawahar Kodo-13 (JK-13)	IGKV / NRC millets Bangalore
	Chhattisgarh Plains	Chickpea	Vijay	IGKV farm/ Private sector
	Bastar Plateau	Pigeonpea	Asha	IGKV Jabalpur / Research station
	Bastar Plateau	Elephant foot yam	NDA-9	IGKV, Jabalpur
Heat Stress	Northern Hills	Wheat	Lok-1, Vidisha, GW-173, Arpa	IGKV Jabalpur / Private sector
	Chhattisgarh Plains	Chickpea	JG-14, Indira Chana, JG-315, JG-11	IGKV Jabalpur
	Chhattisgarh Plains	Pigeonpea	Bahar, Rajeev Lochan, UPAS-120	IGKV Jabalpur
Flooding Stress	North Eastern Plain Zone, Central Zone	Rice	MTU 1010, MTU1001, MTU1140	ANGRAU, Hyderabad
	Chhattisgarh Plains	Chickpea	DCP92-3, Pusa240, GNG16	IGKV farm/ Private sector
	Bastar Plateau	Colocasia	Indira Arbi-1	IGKV farm

c. Crop Diversification - Intercropping/Mixed Cropping

Farmers in Chhattisgarh are primarily engaged in paddy cultivation. Also, in the selected CHIRAAG intervention areas, 73% of the farmers cultivate paddy during the Kharif season. Cultivation of paddy minimizes the scope of intercropping and hence only additional bund can be used for tree plantation. However, the project envisions to promote crop diversification which would enable the scope of intercropping. It would promote diversity in the agriculture ecosystem of the threethese agri-ecological zones – enhanced ecological balance, effective utilization of natural resources, increased crop productivity. Intercropping/multi-cropping would facilitate the objective of the project in following manner:

- Intercropping would be lead to additional farmer income through crop diversification, increased productivity
- Intercropping and mixed cropping would provide the scope for **cultivation of nutritional rich crops** – example **maize cultivation could be promoted along with potato/radish/coriander/spinach** which would lead to securing additional nutrition (iron, carbohydrates, vitamins and micronutrients) requirement of the family
- Further multi-cropping/intercropping would enable climate resilient through enhancing diversification, ecological balance
- Intercropping would also lead to livelihood security through multiple crop production

Beneficiary Selection:

CHIRAAG envisions to serve all the 1.8 lakh beneficiaries through the activities of *“diversified and climate resilient nutrition supportive cropping system”*, horticulture, fisheries and livestock. The idea is to ensure that each beneficiary receives at least one of these benefits. However further through **Integrated Farming System** the project plans to provide bundle of benefits to broader number of beneficiaries.

To meet the objective of **IFS and maximizing beneficiary** reach, all the farmers practicing agriculture would be motivated to take the benefit under *“diversified and climate resilient nutrition supportive cropping system”*.

Project would support the farmers in three-fold manner:

Input support: a revolving fund would be created, and farmers would eb able to avail loan for critical inputs like micronutrients, etc. These should be the inputs which are not provided at the PACS shop.

Demonstration and Training: To enable adaption of improved package of practice the farmers would receive training support and demonstration of selected farmer plots.

Further though the project would not eliminate any farmer in the target villages, it would **prioritize the farmers** in following manner for implementation of the activity:

- Marginal farmers
- Small farmers
- ST and ST farmers
- Women farmers

Phasing-in Strategy:

Selective Strategy: Crop diversification, inter/mixed cropping, organic cultivation, agro-forestry and agro silvo pastoral cropping would be collectively implemented with the farmers practicing agriculture. The project proposes to cover the target 1.8 lakh households through these collective set of activities. Further as the project envisions to develop market linked sustainable value chain models, these would be anchored in establishing robust producer base. Hence the idea is to saturate the target villages through production activity in the first three years of the project. This would enhance the quality and productivity and ensure sustainable quality inputs for the forward value chain.

Year	Period	No of Districts	No of Blocks	No target population	% of HH covered*
First	2021-2022	4	4	10,000	5.56%
Second	2022 -2023	2	6	30,000	16.67%
Third	2023-2024	2	4	60,000	33.33%
Fourth	2024-2025	-	-	80,000	44.44%
Fifth	2025-2026	-	-	-	-
Sixth	2026-2027	-	-	-	-

Implementation Plan for developing diversified, climate resilient and nutrition supportive cropping systems

The implementation of “*diversified and climate resilient nutrition supportive cropping system*” would be facilitated through **Integrated Farming System Approach**. The idea is to mobilize farmer to take up following set of activities:

- Crop diversification
- Organic agriculture
- Inter/mixed cropping
- Agro-forestry/agro silvi pastoral systems

these models would be implemented with the major focus on promoting crops and practices for **nutrition enhancement, climate resilience, and increasing farm income**. Further based on the participatory planning exercise of the CVDP – the idea is to identify farmers which are practicing agriculture, badi and other integrated farming systems and provide holistic support. As reiterated before, “*diversified and climate resilient nutrition supportive cropping system*”, would be a sub-set of the **IFS model**, it would be implemented for **farmers practicing agriculture – as standalone practice or under IFS model**.

As part of IFS systems, **paddy-cum-fish culture would be promoted on the paddy fields**.

Following process describe the implementation strategy and flow of the *diversified and climate resilient nutrition supportive cropping system*:

Regional Diagnostics:

KVKs would conduct the regional diagnostics for identifying the suitable crop varieties for organic cultivation, mixed cropping, crop diversification and agro-forestry, and agro-silvi-pastoral systems. The varieties would be identified based on the 3 focus areas of the project, along with the suitability for **Agro-climatic Conditions:**

- Suitable crop and its varieties for the concerned agro-ecological zones
- Crops having high nutritious value – improved varieties, indigenous varieties
- High economic value agriculture
- Climate resilient crops – suitable for different abiotic stress

Along with the crop selection KVK would also lay down best practices under cropping systems which should be followed by the farmers.

This regional diagnostic will provide result into creating a list of cropping systems and practice example:

Sr. No.	<i>Up-land (Diversification)</i>	<i>Mid Land (Diversification)</i>	<i>Low Land (Diversification)</i>
Bastar Plateau	Organic	Organic	Organic
	Inter/mixed Cropping	Inter/mixed Cropping	Inter/mixed Cropping
	Agro-forestry/ Pastoral	Agro-forestry/ Pastoral	Agro-forestry/ Pastoral
Central Plains	Organic	Organic	Organic
	Inter/mixed Cropping	Inter/mixed Cropping	Inter/mixed Cropping
	Agro-forestry/ Pastoral	Agro-forestry/ Pastoral	Agro-forestry/ Pastoral
Northern Hills	Organic	Organic	Organic
	Inter/mixed Cropping	Inter/mixed Cropping	Inter/mixed Cropping
	Agro-forestry/ Pastoral	Agro-forestry/ Pastoral	Agro-forestry/ Pastoral

Planning:

During the process of CHIRAAG Village Development Planning, farmers would be mobilized and motivated to take up diversified cultivation from – organic, mixed cropping, agro-forestry and agro-silvo-pastoral systems. The facilitators would assess the current cultivation practices of the farmers. Based on the KVK's suggestions, farmer would be able to select the crops for cultivating organic, mixed cropping, agroforestry from the pool suitable for their field and the agro-ecological conditions of the area.

Aggregation of the farmers under the Livelihood Group:

Interested farmers would be mobilized by the community resource person and community coordinators to form a collective under the Livelihood Group. This group would facilitate in the collective aggregation of the demand and the farmers would be allowed to take loan from the Livelihood Group for meeting their input credit requirement. Further the group would raise collective demand for input procurement from the PACS centre facilitated through CRC. Thus, it will support in leveraging economy of scale and maximising benefits for the farmers.

Financial Assistance:

Farmers would be encouraged and facilitated to take input loan from the LG revolving fund for crop cultivation on 1 acre of land. Further the project staff would support the farmers in bank linkages, and avail KCC loan for inputs. This would help in increasing the KCC uptake and ensure regularization of the KCC accounts.

Training and PoP:

Package of practice would be designed considering the agro-climatic situation of the project location, for each crop proposed in the project. The PoP would be delivered to the farmers part of LG through the CC and Agriculture Resource Persons. These scientific steps of cultivation will ultimately cater to quality and quantity produce which proportionately benefit the farmer in good returns. The PoP would also cover critical elements like:

- Land preparation
- Sowing/planting/cultivating
- Climatic and soil requirement-wise crop management
- Nutrient management
- Water management
- Weed management
- Disease and pest management
- Harvesting practices and post-harvest management

Capacity Building and Training will be one of the important interventions under the component. Activities like training of farmers/field workers with a view to ensuring growing quality planting material, awareness campaign, publications, information sharing, exposure visits at national and international levels, seminars/workshops etc. would be supported under this. Farmers would be provided with the advanced crop advisory and handholding support throughout the crop cycle for facilitating the quality production and ensure high yield.

Demonstration of Agroforestry/Mixed Cropping Models:

Specific projects for demonstration to bridge the yield gap and for extension purposes on area-specific innovative agroforestry and mixed crop, organic cropping models will be supported particularly in the field of climate-resilient production and higher productivity cropping systems. The project would enable partnerships with SAUs /ICAR Institutes/KVKs, CAUs/CSIR/ICFRE institutes / State Government/ other National & International level agencies/ organizations to develop and implement these programs.

Apart from agro forestry and mixed cropping models, the project would also demonstrate PoP of various crops (as suggested in the IFS models) in every village. Every village would witness a number of crop demo for a period of at least 3 years.

Implementation Process:

- SPM and PM Agriculture would design the policy note for the program
- PM agriculture would be responsible for drafting the SOP guideline for the program implementation
- PM agriculture would train the project staff on the SOP for the program implementation
- BPM would facilitate, and CC would conduct CVDP mobilize the farmers and motivate them to join the program and collate respective demand for organic farming, mixed/diversified cropping, agro-forestry
- CC and ARP would collectivize the interested farmers to join the Livelihood Group
- CC and ARP would plan with the LG group members about the different cropping that the LG members would take up. In the different meetings it would also be decided the type of demonstration that the project would take up with the particular LG.
- The selection of farmers and area for demonstration would be done in LG meeting. The details for demonstration would be articulated later in consultation with the CVDP TSA IGKV and the project team including the agriculture department
- ARP would make a list of the input procurement and submit to the CRC for procurement from PACS

- CRC ensure timely procurement and distribution of the inputs for the farmers
- ARP and CC would facilitate the farmers to submit loan application to the LG for taking input credit and support with bank linkage to avail KCC subsidy
- CC and ARP in close monitoring of the RAEO and BPM would provide training and demonstration and deliver PoP for selected crops to the farmers for cultivating – mixed crop, agro-forestry, agro silvo pastoral cropping, organic farming, crop diversification
- ARP would regularly monitor the farmers activity and report to the CC and BPM
- ARP, and CC would support the farmers in post-harvest management – aggregation at village level and primary processing at the CRC
- Value Chain Development officer and BPM in coordination with CC and ARP would support in produce aggregation and forward market linkages

Project Support:

i. RevolvingFund:

Ensuring timely availability and quality of the input is most critical for successful implementation of the activity. The project proposes to provision for an input fund for the Livelihood Group. Farmers would be able to take loan from the livelihood groups at an interest rate decided by the LG working committee. This would support the farmers in meeting their input requirements. The cost of Input includes seeds, bio-fertilizers, bio-pesticides and other investment that goes into the cultivation of the crops. Details of the input fund:

- Project would grant each Livelihood Group a revolving fund,
- The fund would be a grant for the LG, however, LG would extend it as loan to the farmers
- Interest rate of the loan would be decided by the LG working committee, and the repayment schedule of the loan would be mutually agreed by the committee and the farmers
- The recovered principal along with the interest collected will form the corpus for lending as a crop loan for the subsequent season for other members
- ARP would support the farmers to apply for LG fund to the livelihood group
- LG committee would assess and approve the loan demand from the farmers
- The terms and condition of repayment would be decided by the LG EC. The LG would be facilitated and supported to keep track of all repayment.

ii.Enhance State’s Capacity for Seed Self Sufficiency

Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15 – 20%¹²⁵ depending upon the crop and it can be further raised up to 45%¹²⁶ with efficient management of other inputs.

The total distribution certified seeds in the state has increased from 7.43 qt. in 2012 to 9.2 qt. in 2018 which is a 24% increase¹²⁷. The percentage increased in seeds distribution was found to be more in Kharif season 26% as compared to total Rabi crop 14%¹²⁸.

Government of Chhattisgarh has laid down significant efforts to improve seed replacement rate and availability in the state. State Seed Corporation has provided support in promotion of seed cooperatives, resultantly the area the seed production has increased from 7.42 qt in the year 2014-15 to 10.86 qt in the year 2018-19, which is a 46% increase¹²⁹. IGKV, plays a critical role in the government

¹²⁵<https://agriportal.cg.nic.in/agridept/AgriHi/SeedDistribution.html>

¹²⁶ Ibid

¹²⁷ Ibid

¹²⁸ Ibid

¹²⁹ Ibid

seed program by ensuring breeder seed and F1 hybrid seed availability for the producers. Also, IGKV has worked to develop bio-fortified seeds for nutrition enhancement and food security.

Though the Government has taken strategic actions to improve the status of seed availability and production, efforts are required to make the state seed self-sufficient. It has become evident that in order to achieve the food production targets of the future, a major effort will be required to enhance the seed replacement rates of various crops. This would require a major increase in the production of quality seeds. The state is currently procuring a large amount of seed from the private vendors and other states. Increasing seed self-sufficiency of the state is the key vision of the project.

Objective

*To make the state improve in seed production of the selected seed/planting materials – **pulses, cereals and oil seeds**. Especially focusing on newly released, **high nutrient and climate resilient** - hybrid and open pollinated. This will also include fodder seeds/material. Enhanced focus would be given to local species of fruits and vegetables, like the numerous leafy vegetables and perennial plants. The project would be implemented preferably through the seed village model.*

- To create awareness on the importance of seed and varietal replacement
- To sensitize and encourage the farmers to adopt localized seed production through seed village - for both hybrid and open pollinated variety
- To train and build capacity of the farmers on all aspects of seed production processing and storage
- To demonstrate the benefits and viability of commercial seed production and encourage participation of more farmers and villages in seed production process

Beneficiary Selection:

- Farmer interested in seed production, preferably from same village
- Farmer forming cluster of contiguous land would be preferred
- ST/SC/Women farmers would be preferred
- Farmer with minimum landholding of 1 acre

Phasing in Strategy:

Year	Period	No of Districts	No of Blocks	Village brought under seed cultivation (Ha)	% of HH covered*
First	2021-22	2	2	10	5%
Second	2022-23	3	5	30	15%
Third	2023-24	3	5	85	42.5%
Fourth	2024-25	-	2	75	37.5%
Fifth	2025-26	-	-	-	-
Sixth	2026-2027	-	-	-	-

Implementation Plan:

Planning and policy support:

While conducting Regional Diagnostic, KVKs would identify the appropriate crop variety for seed production in the selected blocks **-considering the specific agro-ecological conditions**. CC and BPM would assess the demand for seed production during the CVDP. Further the APM, and PE Agri would develop the seed production plan inclusive of seed village development, for the program implementation. The selection of the crop would be anchored on the following key focus areas:

- Suitable crop and its varieties for the concerned **agro-ecological zones**
- Crops having **high nutritious value – improved varieties, indigenous varieties**

- **Market demand** - high economic value agriculture
- **Climate resilient** crops – suitable for different abiotic stress

Project Executive and APM Farm would also draft the SOP guideline for the program. Further the relevant staff – District Manager Farm, BPM, CC would be trained to roll-out the SOP and the program.

During the planning phase it would be ensured that the seed production plan is developed, which would calculate the requirement of seeds as per the expected next cropped area. This would ensure that the seed production supported by the project is in line with the state demand. Further it would mitigate the risk of spoilage and wastage due to lack of market access.

Community mobilization:

The farmers engaged/interested in the seed production would be mobilized to form a seed cooperative, further the farmers from the same village would be promoted for promoting a **Seed Village**. The community coordinator would mobilize the community to form a cooperative with the help of the ARP. The group would form a mutual committee with consensus and select the name of the cooperative along with the leaders. ARP would mobilize the farmers to collectivize the share capital and contribute to the cooperative. The CC and ARP would facilitate opening of bank account of the seed cooperative.

Registration:

Once the Cooperative is formed the community would collectively decide and agree to the by-laws for cooperative formation. The CC and APM would facilitate the cooperative to define the by-laws. Further the CC and BPM would facilitate the cooperative in completing the administrative procedures - submitting the application for **registration to the District Registrar Office**. BPM and PE would also support in **registering the cooperative with the State Seed Corporation**, this would facilitate the farmers to avail the benefits of seed production.

Partnership for technical support, input supply, and training:

The project would support in partnership with IGKV to provide technical support to the farmers for seed production. The partner agencies would provide training, demonstration for quality seed production.

- The university would **provide breeder/certified//foundation seed** for seed production for the farmers of seed cooperative
- In case IGKV is not able to supply the required seeds, Seed cooperatives would facilitate the seed procurement through open tendering process
- IGKV would design the training module for the seed production
- Project staff – APM Agri, District Manager Farm, BPM, CC would be trained by the IGKV resource persons for seed production
- Further IGKV would provide front-line demonstrations and technical training directly to the farmers in convergence with the CC
- The trainings would be delivered in convergence with the district level KVKs
- Enhanced focus would be given on providing demonstration and training for cultivation of hybrid seed
- Farmers cultivating hybrid seed would directly work in close guidance with IGKV/KVK
- KVK and IGKV would also provide support advanced crop practices for seed production ensuring quality produce. It would support in training and disseminating information regarding:
 - Land preparation
 - Sowing/planting/cultivating
 - Climatic and soil requirement-wise crop management
 - Nutrient management
 - Water management
 - Weed management
 - Disease and pest management
 - Harvesting practices and post-harvest management

Handholding support:

BPM and CC would provide constant monitoring and handholding support to the farmers. Further ARP would be deployed to regularly monitor the progress and ensure that the farmers are practicing advanced cultivation methods as trained by the IGKV

- BPM would ensure that regular field visits are conducted by the CC to monitor the crop production in the seed village
- Collective farm handholding sessions would also be conducted by the BPM, lead by KVK experts to solve the queries of the farmers regarding seed production

Support for harvest and post-harvest management:

Focused support would be given to the farmers practicing seed production. Farmers would be able to avail the facility of grading, sorting and cleaning at the CRC or FPO. Further the seed cooperative may converge with the FPO and establish the seed processing plant based on the marketable surplus.

- Community coordinator and ARP would provide enhanced support and monitoring during the crop harvest and post-harvest
- Community coordinator would link the farmers of the cooperative with the Custom Hiring Centre at the CRC for availing advanced farm machinery for harvest and post-harvest management
- Further community coordinator would connect the farmers with the Mandi godown/warehouses for enabling effective post-harvest storage and minimizing the loss

Certification:

The seed producer cooperative would be linked with the State Seed Certification Agency which would conduct regular monitoring to ensure the quality seed production.

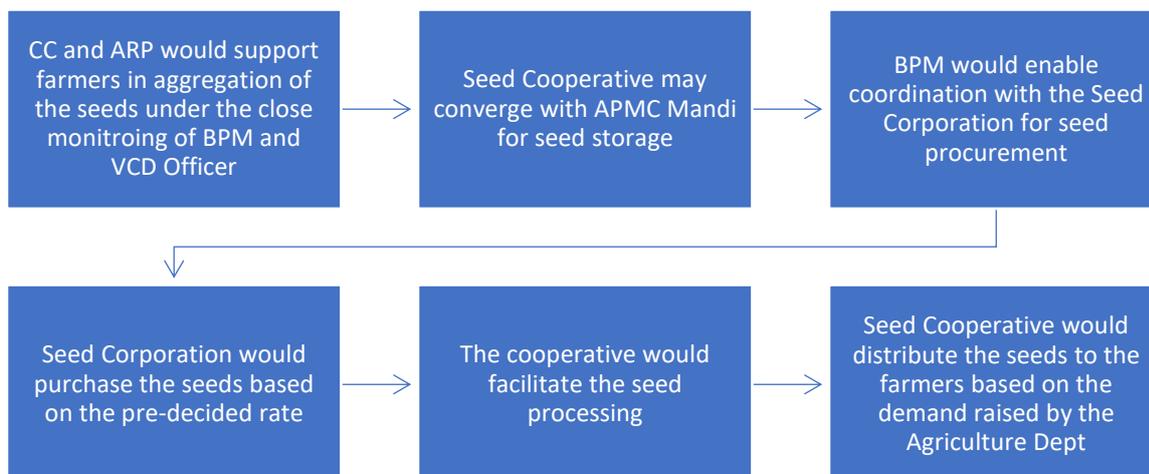
BPM and Community coordinators would facilitate the officers of Seed Certification Agency to conduct regular monitoring and sample analysis. Based on the seed certification the farmers would be able to sell the seeds in the local market/Seed Cooperative

Forward market linkages:

With respect to forward market linkage and distribution of the seeds there are multiple models which the LG may explore:

Linkage and Distribution through Seed Corporation:

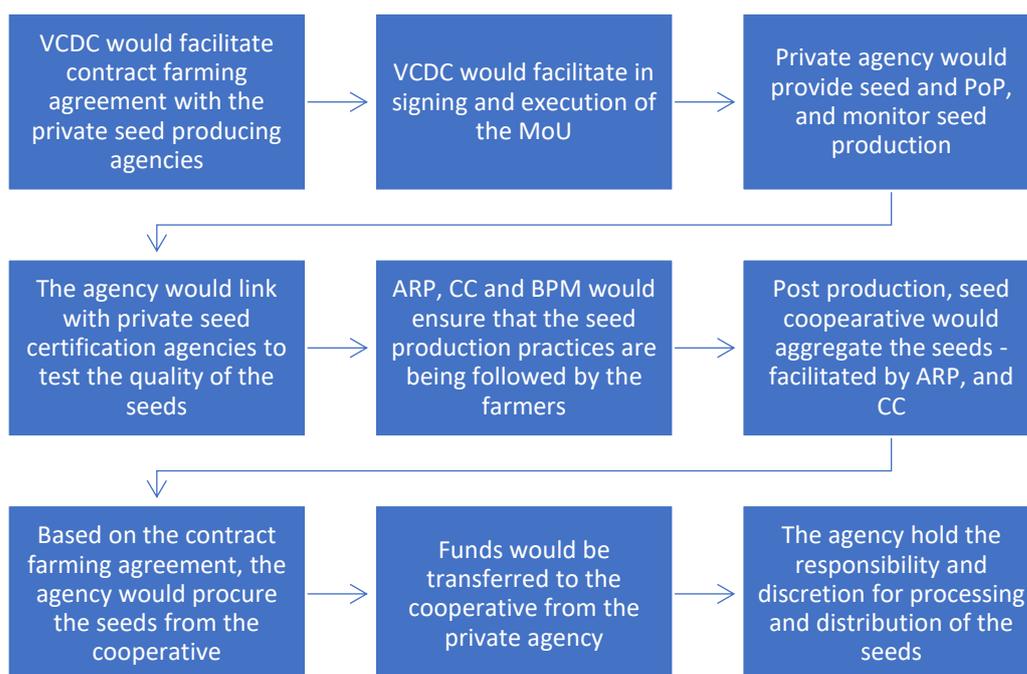
As the seed cooperative would be registered with the Seed Corporation, forward linkage would be established by the seed corporation to provide buy back to the farmers. The farmers would be able to sell the certified seeds produced to the seed corporation at the rates decided by the agency. APM Agriculture would provide handholding support to the farmer cooperatives to establish buy-back linkages with the seed corporation.



Private Partners:

VCDC could provide facilitation support for market linkages with the private agencies to enable higher prices realization to the farmers.

VCDC may also facilitate contract farming for the production of seed. In this case partnership would be established between the private agency and the cooperative. VCDC would support in drafting the memorandum of understanding, facilitating the negotiations and enable MoU between the agencies. Further APM, and PE Agriculture, and Manager Farm would support in materializing the MoU as per the terms of the contract and ensure that the farmers are able to avail the market linkage support for higher price realization.

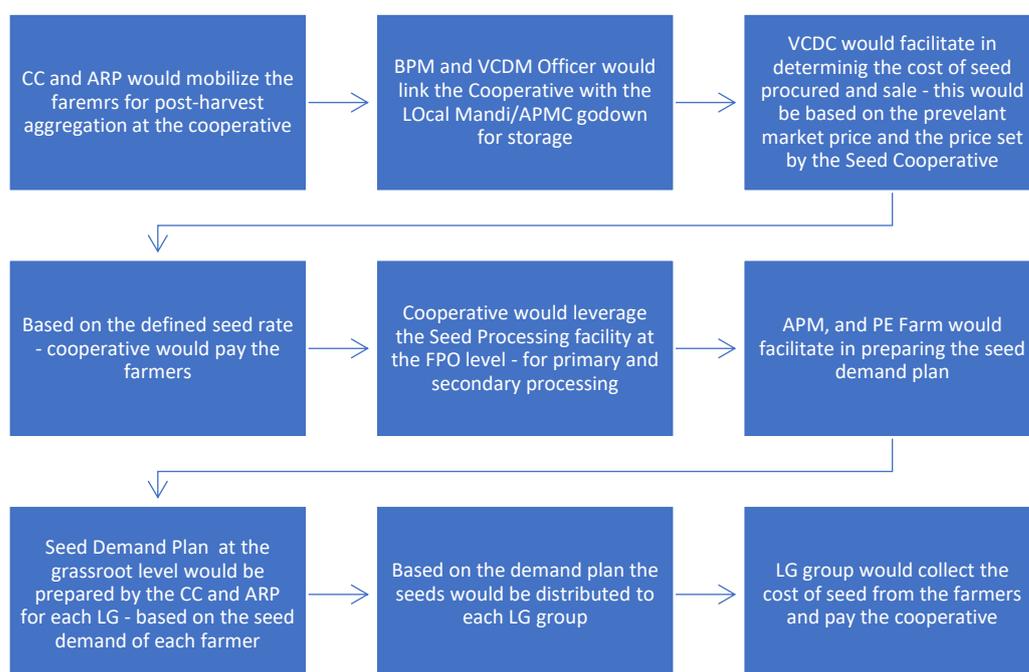


Distribution to the CHIRAAG Locations:

Availability of quality seed has been a challenge in the remote rural areas. Though there are 137 PACS shops in the selected project locations, due to delay in availability of seeds and non-availability of improved variety of seeds, farmers are indeed dependent upon the local market for the purchase of quality seeds. Further these markets are also thwarted by cartelization – private distributors deciding the variety and price of the seed inputs.

As the project is targeted to be implemented in the remote tribal areas of Southern and Northern Chhattisgarh, it provides an unprecedented opportunity to ensure the availability of quality seed input in these geographies. It is being proposed that the seeds produced by the seed cooperatives promoted by the CHIRAAG project would be distributed to the farmers in the CHIRAAG location. This could be facilitated through the Livelihood Groups and FPO.

The intervention has the potential to **develop rural areas as seed self-sufficient units** and promote production and productivity – enhancing farm income and climate resilience.



Cost Table and Support from the Project:

i. Seed Input:

The project would provide support to the farmers engaged in seed production. It will supply quality breeder and foundation seed to the farmers to procure the input seeds for seed production and multiplication.

ii. Infrastructure for Seed Processing:

Farmers engaged in seed production are dependent upon the State Seed Corporation for the processing of the seeds. The project envisions to strengthen the capacity of the farmers for seed production and processing. Community based model of seed production and distribution has the potential to revolutionize the seed value chain and break the cartelization of local private players.

Thus, it is being proposed to support FPO – based on the business case – to engage into the seed processing. The farmers engaged in seed production, especially under the CHIRAAG intervention areas would be able to process and directly sale the seeds in the local rural areas. This would further support the rural geographies becoming self-sufficient in seed input

iii. Training and Demonstration:

Partnership would be established with IGKV to provide PoP for the seed production. Especial focus and handholding support would be given to the farmers engaged in hybrid seed production.

S.NO.	INTERVENTION	Beneficiary	INPUT COST (INR)	PURPOSE OF FUND
1	Seed Input	Farmers engaged in seed production	30,000/ Ha	Provide input support to the farmers engaged in seed production
2	Training, Demonstration, PoP	Farmers engaged in seed production	Lumpsum amount considered under the training and capacity building cost	Enhanced capacity of the farmers for seed production
3	Seed Processing Unit	FPO – based on business case	Would be developed from the input fund received by the FPO	Promote seed processing at the District level

4.2.3. Nutrition Supportive Climate Resilient Horticulture

4.2.3.1. Introduction

Chhattisgarh is owed to a diversified climate in three agro-climate regions. This makes it suitable for growing a wide range of tropical, subtropical, temperate horticultural crops which includes gamut of crops of fruits, vegetables, tuber crops, spices, flowers and plantation crops, medicinal and aromatic plants. As of 2018-19, the production of horticultural crops stood at 10.2 million tonnes over an area of 8,64,451 Ha during the year 2018-19.

The major fruit crops grown in Chhattisgarh state are Mango, Cashew-nut, Guava, Banana, Papaya, Lime, Jack fruit, Litchi, etc. Apart from these major fruit crops minor fruits like Sitafal, Bael, Ber, Anola, Sapota etc., are also grown both as cultivated and wild crop. The total area of the fruit crops in the state is 2,56,776 ha. along with the production of 25,42,241 MT in the year 2018-19. Agro climatically Mango can be grown in the whole part of the state successfully while the northern hilly area of Sarguja and Jashpur district is suitable for production of Litchi. Cashew nut can be grown well in the plateau region of Bastar & Raigarh district.

Vegetables – Mostly all vegetable crops like Solaneious crops, Cucurbits, Beans, Cabbage, Cauliflower etc., are grown very well in the state. The total area of vegetable crops in the state was recorded 4,91,214 ha. in the year 2018-19 with the production of 68,90,529 MT.

Spices - Chilli, Ginger, Garlic, Turmeric, Coriander & Methi are the major spices grown in the state. The total area of spices recorded in year 2015-16 was 93,588 ha. with the production of 6,59,250 Mt.

Flowers - Area under flower cultivation is negligible in the state. With the formation of new state the demand of flowers is increasing day-by-day. To meet out the growing demand of flowers it is essential to promote commercial floriculture among the farmers. The major flowers like Marigold, Tuberose, Gladiolus, Roses, Gaillardia, Chrysanthemum, etc. can be grown very well with little effort. Gerbera, Orchid and Anthurium and other flower crop which are being cultivated in open condition. The present area under floriculture in the state is 14,008 ha. with the production of 74,609 Mt. approximately in the year 2018-19.

Aromatic & Medicinal Plants - The medicinal crops grown in the state are Ashwagandha, Serpagandha, Satawar, Butch, Aonla, Tikhur etc. Some aromatic crops like Lemongrass, Pamarosa, Jamarosa, Patchauli, E. citridora and Vitever (Kus) are promoted by the department for commercial cultivation among farmers. The present area of aromatic and medicinal crops in the state is 8,865 ha. with the production of 58,013 Mt. in the year 2018-19.

4.2.3.1. Objective

The Prime Objective of the project the sub-component is to promote production of high value and high nutritious horticulture crops to increase household income and improve nutritional levels. Horticulture, as of the key components in the IFS model also aims to enable climate change adaptation through various smart practices such as water conservation and efficient soil management. The vision is to lay down strategic interventions to increase production, productivity and farming sustainability to improve nutrition, diversify income sources foster market access and linkage as well as built a climate resilient ecosystem. The key objectives of this sub-component can be laid out as follows:

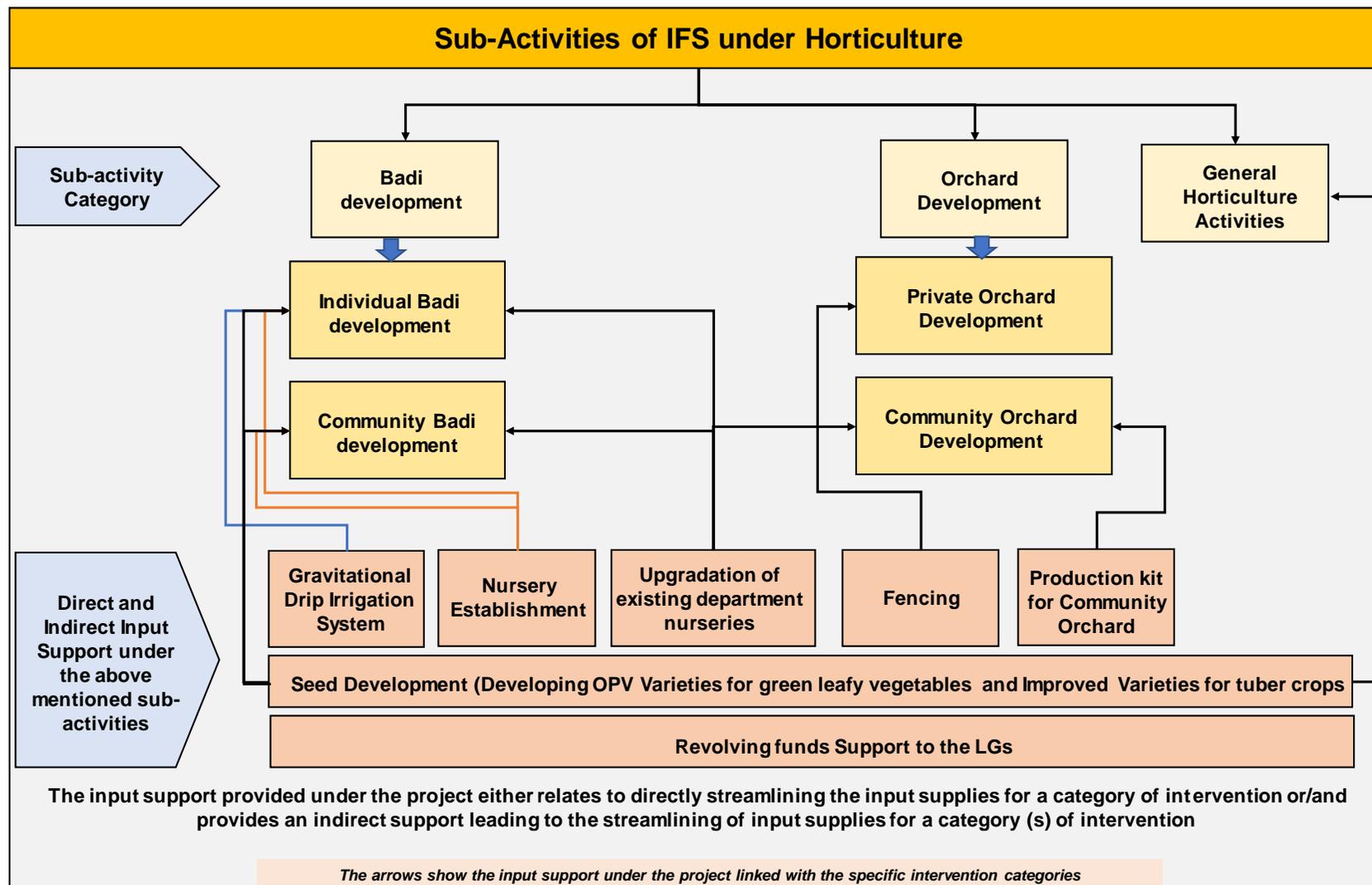
- Promote development of nutri-kitchen gardens – Badi in the rural households so as to promote the intake of nutrition
- Diversify sources of farmers income through promoting integrated farming system
- Building resilience in horticulture systems and promoting mechanisms to cope with or reduce the impact of climate change in the farming systems
- Collectivization of individual producers into organized groups – Livelihood Group and Seed Cooperative for improved service delivery
- Capacity building and training support to the farmers to ultimately improve the farming and farm resource management practices
- Transfer of scientific technical knowledge to enhance production and productivity
- Enable processing for the horticulture produce and develop robust value chain
- Striving to build seed-self-sufficiency to reduce the cost of input procurement and promote the use of quality planting material
- Establishment of profitable market linkages and providing easy access to the market

4.2.3.2. Implementation of Nutrition Supportive Resilient Horticulture

4.2.3.2.1. Phasing in strategy

Sub-activities of IFS under Horticulture	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Individual Badi	Farmers	-	-	40,000	55,000	50,000	-	1,45,000
Support for Gravitational Drip Irrigation	Farmers	-	1,000	3,000	3,000	3,000	-	10,000
Support to fencing for private orchard	Hectare	70	300	250	200	-	-	820
Upgradation of dept. nurseries	Nurseries	2	3	3	-	-	-	8
Establishment of horticulture nurseries (75% grant)	Nurseries	30	75	150	70	-	-	325
Seed production for OPV	Hectare	30	50	50	40	-	-	170
Seed production for tuber crops	Hectare	30	50	50	40	-	-	170

4.2.3.2.2. Sub-Activities of IFS under Horticulture



III. Badi Development

Nutrition Garden (Badi) is a low cost, scientific model of kitchen/homestead garden with variety of nutritious vegetables, fruits and medicinal plants produced throughout the year organically thus ensuring nutritional security of marginal farming families in rural areas. Badi Development has been identified as one of the key interventions to improve the nutrition profile as well as the income sources of the target beneficiaries under the project. The badi development activity will take place at the individual as well as at the community level.

Following are the key objectives of badi development under CHIRAAG

- Enhance communities' nutrition and livelihood security of farmers to sustainably manage farm-based resources
- Create and promote the economic and nutrition benefits of kitchen garden through cultivation of varied fruits, vegetables and spices by the target beneficiaries
- Building on the exiting indigenous knowledge of the farmers through promotion of local techniques and case-based best practices
- To help in reducing malnutrition and micronutrient deficiencies by consumption of freshly grown vegetables.
- Focus on promoting IGKV's researched Nutri-dense varieties
- Bringing the agricultural crop diversity at household level to reduce the ecological and environmental footprint and food miles.

Scale of Intervention: As the interventions under CHIRAAG would be classified as Extensive (available for all the HHs in the selected villages) as well as Intensive (available for only the identified target beneficiary under the CHIRAAG villages), the individual Badi intervention would be undertaken as Extensive activity and each of the willing HHs will be provided with inputs for badi development. On the other hand, development of community badi will take place as an intensive activity and based on farmers willingness and land availability the intervention will be rolled out.

Beneficiary Selection Criteria: Following will be the broad beneficiary selection criteria for considering the HHs for coverage through this intervention

Individual Badi

- HHs who have a backyard farming land with an average of upto 500 sq. meter,
- HHs who are not covered under the existing badi scheme

Following will be the implementation plan for the **individual badi development** under CHIRAAG

- **Demand aggregation and mobilization of the Livelihood Group:** Based on resource assessment and crop plan, derived from conducting regional diagnostics and preparation of VDPs, the information dissemination regarding the same will be undertaken across each of the selected village. Each village will have a livelihood group that will comprise of sub-groups specific for certain interventions planned under each of the sub-component. As individual badi is the extensive exercise, hamlet based informal sub-group will be formed within the LG group. However, in case of community badi, a formal intervention specific sub-group will be formed.
 - A meeting will be convened by the livelihood group members with participation from the community coordinator and the existing community cadre from the BIHAN groups
 - The meeting will be aimed at mobilizing the interested farmers who are willing to undertake badi development at the individual level
 - This will include planning with KVKs that will act as the Technical Support Agency for crop selection and planning the badi development
 - Farmers interested in individual badi will notify themselves with the Krishi Mitra, who will maintain the database of farmers to be used while developing the annual budget and procurement needs of the LG

- The sub-group will be managed by the KM; one KM on managing 100 people in the village in that livelihood group
- **Procurement of Inputs:** Under the Badi Development intervention, the procurement will happen at the district level aided by the department officials.
 - **Badi Development Kits:** The badi kits will comprise of a composite vegetable (seeds) and fruit basket (saplings); selected crops as obtained from the planning process as well as basis the regional diagnosis conducted by the IGKV; the basket would contain bio-fertilizer, bio-pesticides, (Neemkhali, Sarsokhali, (mustard cake); Vermicompost; azertiretctin, bawareia, verticelium) which will be distributed to the interested farmers as a part of the kit. The Open Pollinated Seeds (OPV) and the fertilizers will be procured from Beej Nigam while the fruit saplings will be procured from the existing department nurseries and will not form the part of project procurement. Following will be the process of procuring the badi kits:
 - Post the demand aggregation by the KM, the KM will share the collated demand for the number of kits needed by the with the Community Coordinator deputed over the respective village
 - The CC will collect the demand from the respective villages and will forward the same at the block level, to the BPIU
 - The District Farm Manager will then collate the demand from the respective BPMs and will forward it to the DDA/ADH via the DPMU
 - Based on the Disbursement Advice received by the SPMU, the DDA will transfer the funds to the respective officer based on the demand
 - The fund transfer will be made by the DDA to the DDH or ADH and then the respective officials will make the payment to the DM Agro, Beej Nigam
 - The goods will be delivered to the respective Blocks at the BPIU offices and the CC and/or the Block level agri officers could send it to the LGs.
 - The KM will then distribute it among the farmers and will keep a record of the same
 - The fruit saplings will be procured from the departmental nurseries across the selected blocks/districts and will be distributed to the KMs who will then distribute it among the farmers
 - **PoPs:** IGKV will be responsible for developing PoPs for the plantation specifying; recommended varieties, selection and preparation of land, time of sowing, seed treatment, seed rate, usage of fertilizers, irrigation practices (such as information on factors; first irrigation 20-25 days after sowing for crown root initiation stage), weed control mechanisms, harvesting time and techniques, overall quality control pre and post-harvest. Training will be delivered on the ToT model where the district and block officers would be trained by the experts from IGKV and the KVKs. The BPMs would in turn train the CCs who would then provide training to the field cadre (Farm Resource Person and Pashudhan Sakhi). These field functionaries would deliver training to the beneficiary farmers.
- **Training and Capacity Building:** Training and demonstration for growing and harvesting of selective crops and the techniques for inter-cropping and agroforestry (in case of community badi) will be provided with active involvement from the technical staff from the KVKs.
 - Training and capacity building will take place on the ToT model across the selected modules
 - District level officers will be trained at the state level
 - Block Project Manager, Block Agriculture Officer, and other field functionaries at the block level will be trained on the ToT by the district officers and experts from the IGKV
 - The BPM will train the Community Coordinator and the existing field functionaries at the grassroot level
 - The CC will finally train the KMs and the existing community cadres from the different villages and these field functionaries will then train the target beneficiary farmers for individual and community badi development.

Input Support: Under badi development as one of the sub-activities, the input support provided by the project includes the following;

- **Provision of Gravitational Drip Irrigation System** (as an input support to those beneficiaries meeting the basic criteria and willing to invest in the purchase of the irrigation system at a subsidized cost)
- **Establishment of vegetable and spice nursery** (as an input support to ensure that post the one-time project support in the supply of vegetable kits to the farmers is continued through the supply from these nurseries established under the project, thereby enabling the creation of sustained backward linkages)
- **Upgradation of the existing departmental nurseries** (this would be a cross-cutting support for badi development kits having select fruit saplings; orchard; for the supply of fruit saplings, as well as agroforestry; for the supply of select species, sub-activities)

i. Gravitational Drip Irrigation System:

The project stakeholders have considered to include provision of gravitational drip irrigation system to some of the select beneficiaries with an opinion that the on-farm models of the select farmers could be positively transformed using the irrigation system. The support will be provided on a pilot basis to 10,000 HHs within the CHIRAAG beneficiaries. Provision of continued source of water would enhance the productivity of the backyard nutrition garden of the select farmers and this would also establish as a success model for other farmers in the area. On an average there can be about 10 HHs from each of the CHIRAAG villages that can avail for purchasing the gravitational drip irrigation system.

Beneficiary selection criteria will be the following:

- HHs with an assured source of water supply available at the farm
- HHs who have the farmland area of 500 sq.m to 1000 sq. m

The process for the same will be as follows:

- Post the interested farmers show the willingness to purchase the irrigation system, the KM will confirm if the interested HHs have a proper water source as well as sufficient land area
- The KM will identify the number of eligible farmers for the irrigation system and will apply the same at the CRC level
- The CRC will communicate the total demand across 3 villages under its jurisdiction to the Community Coordinator
- The procurement process for this will follow the same route as from SPMU
- The supply, installation and functioning will be monitored by the KM and the CC

ii. Establishment of Vegetable and Spices Nursery

To ensure that the target beneficiaries continue to receive the supply of saplings post the one-time distribution of badi kits it is important to have a proper source of continued supply of inputs to the farmers. As a result, the stakeholders have considered to establish the nurseries for the development of vegetable and spice saplings that can be purchased by the HHs post the supply of kits.

Nursery is consequently the basic need of horticulture. Plant propagation techniques and practices is the core of horticulture nurseries. The fate of nursery depends on quality of mother plants. Mother plants are required for both stock and scion. Mother plants should be selected on the basis of its genetic traits and other factors like availability and adaptation in the growing environment. The stakeholders from the department have opined to establish vegetable and spices nursery across the CHIRAAG intervention areas. Following is the rationale for including this intervention and its importance towards achievement of the PDO:

- To ensure the continued and assured availability of quality input to the HHs
- To ensure a mechanism for post project sustainability
- To ensure that the nutrition need of the HHs are being met as well as
- To ensure the timely availability of the nursery planting materials at the beginning of the planting season, thereby saving the time, money and efforts of the farmers to raise seedlings.
- To ensure making more efficient use of land and improve crop uniformity in the field

- To provide rural-based entrepreneurial opportunities to the youth in the target areas who are willing to contribute 25% of the total investment in the nursery establishment, while 75% of the cost would be funded under CHIRAAG

Scale of intervention: This department proposes to establish 325 nurseries across 14 blocks of CHIRAAG on the agri-entrepreneurship model.

Implementation Plan for this intervention is as follows:

- **Planning:** The planning process will fundamentally form the base for all rolling out all the key interventions under the project. This will be conducted at the village level to identify the asset base with the HHs, resources available with the households in terms of land availability, current cultivation practices, types of crops available in the region and other allied activities being followed by the targeted HHs among others.
- **Mobilization of the farmers into LG:** This process will include creating awareness among the farmers regarding the planned intervention and will aim at the following:
 - Explaining and discussing the need for establishing the nursery
 - Explaining the value proposition to the entrepreneur
 - Helping growing vegetables by catering to demand for quality planting material
 - Income earning potential is high, with small working capital, short business cycles
 - New business, first mover advantage in the area
 - Possibility for layering new businesses for entrepreneur
 - Explaining the value proposition for the farmers:
 - Convenience; When needed, its available and the unplanned requirement can be attended to – planned, but dropped plan or now wants to do based on rainfall and crop performance
 - Risk is shifted from smallholder to the nursery entrepreneur
 - Hassle free: readymade seedlings
 - Seed availability, also for other inputs, for the future contributing to irreversibility of the program
 - Enabling farmers to take crop early, when they were not able to take it in usual circumstances
 - Prospect to add new technology in the area
 - Discussing about the success stories in the nearby and adjoining areas and the key challenges such as poor germination, lack of awareness of improved nursery practices such as raised beds, seed treatment, protection against environment, etc
- **Selection of Agri-entrepreneurs:** Once the LGs are formed, the KMs will then begin the process of mobilizing the interested farmers who are willing to uptake the activity of nursery establishment. Selection of Entrepreneur (or Gauthan Committee) is the most crucial element for this model. Following will be the possible selection criteria for the agri-entrepreneur
 - Is a successful farmer with a well-managed farm/farming operations
 - Identification of farmer as an expert among others in its area. The farmer interested in giving extension support, leadership.
 - Deeply interested in horticulture, tries some innovative methods regularly at own level
 - Expand the business gradually
 - Able to handle accounts, documentation, basic arithmetic comfort
 - Ability to contribute capital to initial start
- **Land Selection:** Site selection plays a major role in the development and management of the nursery and helping to meet its marketing challenges. Following criteria should be considered while land selection

- Select a slightly sloping land: Mildly sloping land (1- 2% gradient) is preferable to ensure a free flow of any excess water. In hilly areas, preferably locate the nursery in the foothills so it can avoid soil and water erosion
- The site should be close to high quality water: There should be a good water source near to the nursery as a reliable supply of good quality water is necessary
- Non-cultivable land is a very good location for a nursery. Soil quality is not important, as seedlings are grown in soilless media in germination trays. Areas with intensive fruit or vegetable cultivation around the nursery should be avoided to prevent infestation of seedlings with insects, fungal and bacterial spores (e.g. mites, thrips, whitefly, or blight).
- **Orientation and Training of the selected agri-entrepreneurs towards nursery management:** Once all the entrepreneurs are selected, a joint orientation and training program will be conducted by the TSA responsible for training. Training will be provided on the following aspects:
 - Introduction and Key Benefits of Vegetable Nursery Development
 - Introduction to Good Nursery Management Practices
 - Nursery land and Structure Selection; (Polyhouse, Nethouse, Types of Shade Nets)
 - Type of tools and equipments needed (such as foggers)
 - Preparation of Seedling Trays
 - Raised Beds: Commonly adopted by small-scale nursery owners
 - Steel/aluminium/iron benches/tables: Steel/aluminium/iron tables may be expensive, but they last for 20-25 years. The seedling tables also can be made with locally available bamboo.
 - Preparation of a Suitable Artificial Growing Medium (Coco Peat treatment and Biological enrichment of coco peat to reduce pests and diseases)
 - Methods of Sowing (Manual vs Machine)
 - Nutrient Supply (fertilizer application and cultural practices to manage pests)
 - Post sowing management and care (watering and weeding for quality growth)
- **Business plan preparation:** Post the agri-entrepreneurs have attended the training, they will begin to formulate a basic business plan for their nursery, closely assisted by the Community Coordinators and the TSA for Value chain development for agriculture, NTFP, agro forestry and horticulture.
- **Fund disbursement and Input procurement:** The project proposes to provide 75% of the total funding cost for establishing the nursery.
 - Once the plan is prepared the agri-entrepreneurs will submit the plan along with the demand application to the BPM
 - The BPM will validate the plan and forward them to the DPMU, which post review by the DPMU will be forwarded to the SPMU
 - The SPMU in coordination with PM Horticulture will review the plan and will provide approval for fund disbursement to the LG of that village to which the agri-entrepreneur belongs and will subsequently transfer the funds to the individual entrepreneur
 - Once the funds are disbursed to the agri-entrepreneur, he will procure the requisite materials from the open market

Establishing and Management of the Nursery: Within three months from the completion of construction, the seedlings will begin to spring and then based on the demand in and around the sapling distribution can be planned.

4.2.3.2.3. Cost Summary for the Interventions under the Badi Development and associated input support provided under the project

INTERVENTION	Unit of Funding	INPUT COST (INR Cr.)	Support from the Project
Individual Badi Development	1,80,000 HHs	14.5	Only the OPV and the Bio-fertilizers and Bio-pesticides will be funded from CHIRAAG, the fruit plants will be provided free of cost from the existing department nurseries. The cost of providing the fruit plants is included in the nursery upgradation cost that will be funded from CHIRAAG
Support for gravitational drip systems	10,000 Units	27 Cr.	10% of the total cost @ 30,000/- will be the beneficiary contribution, while INR 27,000 would be provided by the project on each unit
Nursery Establishment	325 units	11.46 Cr.	The project would fund 75% of the total cost (@4,70,000) for Poly House + Land Levelling and Raised Platform (bamboo made) + Working Capital

Overall Roles and Responsibilities of the field functionaries under Horticulture interventions

- **Krishi Mitra (KM):** Each village will have a KM in the livelihood group who will be jointly responsible for managing the village level activity for the agriculture and horticulture. For every 100 persons in the group there would be one KM. Some of the key responsibilities include:
 - Initiating the community mobilization in the livelihood group by mentioning the badi development intervention
 - Coordinating with the CRC members on community demand collation under each of the intervention
 - Coordinating with the treasurer in the group regarding the revolving capital and ensuring the availability for each sub-activity
 - Managing the procurement of the planned inputs either through open market or through the existing schemes of the department
 - Attending training and demonstrations at the block level as and when conducted under the project
 - Providing training and capacity building of the farmers on various modules; good practices of cultivation, PoPs, soil and water management, integrating climate with the badi development and other farm practices, sustainable use of the existing natural resources and such others
 - KM would make a list of the input procurement and submit to the CRC for procurement from the State Seed Corporation
 - Overseeing and managing the post-harvest aggregation from the community badi as well as the surplus from the individual badi
 - KM along with CC would facilitate the farmers to submit loan application to the LG for taking input credit and support with bank linkage to avail KCC subsidy
 - KM would regularly monitor the farmers activity and report to the CC and BPM
 - KM along with CC would support the farmers in post-harvest management – aggregation at village level and primary processing at the CRC
 - Constant coordination with the CC with regards the execution of the intervention activities
- **Community Coordinator:** There will be one CC at 6 villages in the block and will be responsible for the following activities:
 - The CC will be an integral attendee in the meeting between the CRC and the community for initiating and fostering mobilization
 - Will support and facilitate to collectivize the interested farmers to join the Livelihood Group

- Providing training, demonstration and capacity building to the KMs across the villages covering his area of operation
 - Support, oversee and facilitate the KM in mobilizing the farmers to submit loan application to the LG for taking input credit and support with bank linkage to avail KCC subsidy
 - Monitoring of the KM; through review of weekly and fortnightly report of the farmers
 - Support the KM towards the post-harvest management – aggregation at village level and primary processing at the CRC
 - Supervise and monitor the Livelihood and value chain coordinator and MIS and M&E support staff
- **Block Project Manager**
 - BPM would facilitate, and CC would conduct CVDP mobilize the farmers and motivate them to join the program and collate respective demand for badi development, community orchard, agro-forestry
 - BPM and Value Chain Development officer in coordination with CC and KM would support in produce aggregation and forward market linkages
 - Monitoring and supervision of the KMs in the village as well as CC
 - Active and full-time support and facilitation of all the activities from community mobilization, input procurement, management of revolving fund, training and capacity building, linkages to post implementation sustainability
- **PM Horticulture**
 - SPM and PM Horticulture would design the policy note for the program
 - PM Horticulture would be responsible for drafting the SOP guideline for the program implementation
 - PM Horticulture would train the project staff on the SOP for the program implementation
- **SPM Integrated Framing System and Environment**
 - SPM would monitor the policy note designed for various activities under Horticulture
 - Supervise, review and approve the SOP guideline for the program implementation as drafted by the PM Horticulture
 - SPM will also partake in undertaking the CVDP exercise for few of the villages
 - Will be responsible for training the Manager off Farm at the District Coordination and monitoring Unit and supervising the activities across all the sub-components

Horticulture (vegetable crop) development Following activities would be included under the intervention:

- **Crop Selection:** This would be the first step before planning the roll out of the interventions under Horticulture as well as Agriculture. Following is the broad outline of activities to be planned under this intervention
 - A detailed list of crops that are cultivated all across the climatic zones are prepared.
 - From among these, crops are again classified to suit different seasons and land topography.
 - **HVA crop selection based on the zones:** The state has been divided into various agro climatic zones and based on the critical cultivation parameters (climate, land topography, average rainfall) different groups of crops (vegetables, fruits, spices, floriculture etc.) are listed according to its suitability. IGKV will be the technical partner for providing crop selection based on the regional diagnosis and the topography
 - This will form the basis of crop selection under the component. Table number 3 in the annexure gives the details list of the crops that can be cultivated in each of the agro climatic zone.

- HVA advocated on the different topography: The project will roll in three land topography (low, medium and upland) to exploit maximum revenue from these in every season / cropping cycle.
- The low land could cater paddy, midland could cover all the vegetable crops while the fruits and pulses will be covered in uplands.
- Focus will be on vegetables/fruits with high value return in seasons when it comes as off-season vegetables and fruits, in and around neighbouring states. Along with this it aims at helping the beneficiary to earn enhanced revenue by cultivating in the next seasons also i.e. (rabi and late rabi) through creation of modern irrigation facilities.

Implementation Plan for the horticulture crops

- **CHIRAAG Village Development Planning:** This will be conducted at the village level to identify the asset base with the HHs, resources available with the households in terms of land availability, current cultivation practices, types of crops available in the region and other allied activities being followed by the targeted HHs among others.
- **Demand aggregation and mobilization of the Livelihood Group**
 - The Community Coordinator, the KM and the existing field functionaries such as the RHEOs will initiate the information dissemination process about the intervention.
 - The cadre will mention the details of the benefits of the horticulture crops to the community along with its linkage with the CHIRAAG PDO, IFS and the essential role in climate resilience and environment sustainability.
 - The FPO and the Value Chain development officer as well as the Block Project Manager will partially participate in the initial first meetings of mobilization as well as conduct a full time monitoring and supervision
 - The KM will identify the interested farmers and will facilitate the formation of a sub-group for community orchard
- **Formation of horticulture activity Sub-Group:** The intervention will be implemented by the SHGs that federates into the VOs and this group will represent the horticulture activity sub-group.. The farmers will be selected on the basis of cluster approach to ensure group security regarding protection, technology dissemination & marketing of the products. Following will be the key steps involved in the establishment of the orchard group as a part of the multi-commodity Livelihood Group in the village:
 - Identification of farmers (SHGs groups) willing to undertake the horticulture crop activity to form a representative group of proactive people.
 - Discussion with village community through a series of meetings of the village community (Gram Sabhas) to discuss the objectives, rationale and stakeholders involved
 - The group will be managed by the KM who will facilitate all the procurement, trainings and aggregation activities under this activity
 - CHIRAAG will support efficient land use-crop-planning, package of practices and awareness-improvement activities.
 - To help provide better food security to households, it will also demonstrate technologies for improving productivity across the selected crops.
 - The intervention would entail a close collaboration with IGKV that will focus on demonstrating the new varieties specific for the state.
 - Depending on the agro-climatic zones trial plots/demonstration plots for specific drought and flood tolerance varieties will be advocated to build in best possible opportunities even in case of unfavourable climatic conditions.
- **Training, demonstration and Capacity Building:** The training will follow the same hierarchy as mentioned under the badi development activity. Post the procurement of the orchard supplies the KM assisted by the RHEOs the CC and representative from the KVK will conduct demonstration on delivering the PoP. Following will be the process of conducting Demonstration

- The modules on Nutrition supportive and resilient horticulture will be developed by the IGKV who will be responsible for providing technical trainings
- KVKs, BPM, CCs, representatives from the CRCs and respective KMs (from the village where the demonstration will be undertaken) would be collaboratively deciding the site selection criteria or the farmers who would be selected as lead / master farmers where the demonstration will be conducted.
- The next step would be to conduct the demonstration on the ToT model where the CC will become the master trainer trained by the KVKs for conducting the process of demonstration on the farmland of the master trainer as selected in each village.
- The CC could also identify and prepare select KMs as the next set of mater trainers who would deliver the demonstration to the select farmers
- There will be no financial support from the project except for demonstration and training to LG members. It is expected that the LG members would be taking credit from the LG revolving fund to take up this activity on a full scale in their field.

iii. Upgradation of existing department nurseries

There are 122 departmental nurseries situated in different blocks of 27 districts in the state. Most of these nurseries were established during the period of 1982 to 1986. However, despite having more than 122 existing nurseries in the department, there have been huge shortages of planting stock and each year the amount is spent to purchase plants from other sources/states. Looking into the gap between the demand and supply of the planting materials, modernization and up-gradation of existing nurseries and establishment of new nurseries have been planned (in the Annual Action plan 2018-19) to ensure assured and timely supply of quality planting materials.

To further strengthen this initiative, stakeholders under CHIRAAG have proposed to include this intervention towards strengthening the nursery infrastructure across the selected blocks in the state. Out of the total 122 nurseries in the state, **CHIRAAG blocks have a total of 8 nurseries that can be targeted for improving and upgrading the infrastructure.** Following is the rationale and objective of including this intervention under CHIRAAG:

- To ensure the continued production of large number of quality seedling of fruits & vegetables
- To ensure supply of quality planting materials
- To fulfil the gap between demand & supply
- To ensure promotion of crop diversification through introduction of new crop varieties
- To ensure quick turnaround in the supply of planting material so as to optimize the production cycles
- Development of mother tree resource station for different fruit crops (MTRS)

Scale of Intervention: A total of 8 nurseries existing in the project area will be considered for upgradation activity.

Activities to be included under this are as follows:

- Support in the preparation of fruit plant saplings and agroforestry saplings that will provide direct input in the form of fruit plants in badi kits, orchard supplies and select species saplings under the intervention of agroforestry
- Skill up-gradation and capacity building of nursery staff and resource persons.
- Co-ordination and co-operation with related govt. departments, research centers, tissue culture units/labs.
- Supporting the tissue culture units to generate new quality & quantity of plantlets in short time duration.
- Basic logistics support in terms of, ensuring availability of water resources in nurseries, net houses, poly house greenhouse among others infrastructure to be planned for the existing nurseries

Implementation plan

- PM Horticulture would develop a benchmark parameter and study plan to assess the current gaps in the infrastructure across logistics, skills, input supplies, facilities, manpower, finances, modernization and such other criteria
- BPM and field functionaries would conduct the study the comparative benchmarking for all the existing nurseries in the CHIRAAG block
- Local field functionaries in collaboration with KVK will finalize the infrastructure needs to be addressed for the nursery
- Based on the study results individual nursery development plan would be prepared for each nursery
- The CHIRAAG fund would allocate to the DPMU, a lumpsum amount, to be invested in upgrading the nursery infrastructure
- DPM and BPM would be responsible for procurement of the material and ensure nursery development

4.2.3.2.4. Cost Summary of Interventions the input support

INTERVENTION	Unit of Funding	Total Cost (INR)	Support from the Project
Support for Private Fencing	820 Ha	4.51Cr.	Support to fencing for Private Orchard 50% beneficiary contribution @55,000 for the total cost of 1,10,000 for fencing on 1 Ha
Upgradation of existing department nurseries	8 nurseries	3.2 Cr.	Support to 8 nurseries @ 40,00,000 for each nursery

Other Cross-cutting input support for sub-activities of IFS under horticulture

Besides the input support provided for the sub-activities mentioned above, the project also provides a provision for seed development and availability of revolving fund as a cross-cutting input support for multiple activities under the project.

- **Seed Development:** While seed development is an input support activity will focus on developing tuber and OPV seeds
- **Revolving Fund to LGs:** Besides 2 time grant availability for the target beneficiaries, the LGs can also avail loan facility from the revolving fund for undertaking any other/general activities related to horticulture.

Overall Strategy for Seed Development Program in Horticulture

- Seed production will be undertaken on the cluster-based approach; 2 clusters of 300 HHs each
- Cooperatives will be formed for undertaking and managing the seed production across the target areas
- In the first-year full cost of cultivation (i.e. the complete PoPs) will be provided to the cooperative, while in the second year, only the cost of breeder/foundation seeds will be provided to the cooperatives
- The project would support in partnership with IGKV to provide technical support to the farmers for seed production. The partner agencies would provide training, demonstration for quality seed production.
- Knowledge and Technical Support partnerships will be undertaken with Potato Research Institute, Peru, for providing superior and quality varieties of seed such as the HYV of tuber seeds

While the implementation plan for the seed production will be similar to that in the agriculture, it is pertinent to note that three categories of intervention will be undertaken under seed development under horticulture. These include the following:

- (i) **Cultivating improved variety in tuber crops for self-sufficiency** (availability of certified varieties with special reference to tuber crops): improved variety production can be undertaken in selected tuber crops potato, ginger, turmeric, elephant foot, sweet potato. Following are the key activities to be performed under this:
 - State seed farms along with the technical experts from the IGKV will collaborate to develop the F1 generation and Breeder hybrid variety in the selected tuber crops
 - The Foundation variety so produced can either be directly distributed to the interested farmers that can be commercially grown to certified variety and sold by the farmers
 - The farmers can also be directly supplied with certified variety (through IGKV staff) that can be further commercially grown to be sold in the open market for earning higher returns.
- (ii) **Developing Open Pollinated seed with special reference to leafy vegetables and spices:** In case of vegetables, the productivity of the hybrid seed has been observed to be lower as compared to that in the open pollinated ones. Further, the seed production of leafy vegetables in the villages and can be used for rural consumption. Two types of model could be promoted under CHRAAG:
 - Contractual farming agreement between the farmers who are willing to produce open pollinated seeds and the certified seed companies
 - Poly net houses will be provided by the private companies with whom the contractual farming contract is being undertaken
 - Training and capacity building will also be provided for undertaking the seed production
 - Providing PoPs and undertaking capacity building for the farmers who are pursuing production of open pollinated seeds on the individual as well as community basis
- (iii) **Undertaking pilot programs for hybrid seed production of horticulture crops with IGKVK:** Small-scale pilot programs can be undertaken for the development of hybrid seed varieties suitable for assorted agroclimatic zones across the state, in collaboration with the IGKV. Following activities would be involved under this intervention:
 - Community mobilization would be conducted at the CRC meeting where all the interventions related to seed development would be shared with the community
 - The interested farmers will mention their participation across various pilot programs to be organized by the IGKV
 - Based on the farmers' participation, the land for undertaking the pilot seed production would be finalized
 - All the requisite infrastructure needed for undertaking the hybrid seed development on the pilot basis will be established in close consultation with the IGKV
 - Farmers would be trained on the package of practice for hybrid seed cultivation
 - Regular monitoring and handholding support would be provided by the KVK, field functionaries and Horticulture Resource Person

The details regarding the roll out strategy has been included in the Seed Development intervention under the Agriculture sub-component of the PIP.

Revolving Fund

Ensuring timely availability and quality of the input is most critical for successful implementation of the activity. The project proposes to provision for a revolving fund for the Livelihood Group. Farmers would be able to take loan from the livelihood groups at an interest rate decided by the LG working committee. This would support the farmers in meeting their input requirements. The cost of Input includes seeds/saplings, bio-fertilizers, bio-pesticides and other investment that goes across all the sub-activities; Badi Development, Community Orchard, Agroforestry and any other horticulture activities taken up by the project beneficiaries or even for fishery and livestock based activity (detailed out later)

Details of the revolvingfund:

- Project would grant each Livelihood Group an input fund, based on the input requirement as estimated during the LG annual planning process post the CVDP
- The fund would be a grant for the LG, however, it would be a loan for the farmers
- Interest rate of the loan would be decided by the LG working committee, and the repayment schedule of the loan would be mutually agreed by the committee and the farmers
- The recovered principal along with the interest collected will form the corpus for lending as a crop loan for the subsequent season for other members
- KM would support the farmers to apply for LG fund to the livelihood group
- LG committee would assess and approve the loan demand from the farmers

4.2.3.2.5. Cost Summary for the seed development support from the project

INTERVENTION	Unit of Funding	Total Cost (INR)	Support from the Project
Support for OPV Seed Production for Leafy Vegetables	170 Ha	1.02 cr.	Provide input support to the farmers engaged in seed production
Support for Seed Production for Tuber Crops	170 Ha	2.55 Cr.	Provide input support to the farmers engaged in seed production
Seed Processing Unit	FPO – based on business case	Would be part of the FPO business plan and be funded accordingly	Promote seed processing at the District level

4.2.3.2.6. Sub-Activities of IFS under Agroforestry

Agroforestry

This is another key intervention planned under the horticulture sub-component. Agroforestry is an ecologically sustainable land use system that maintains increase total yield by combining food crops (annuals) with tree crops (perennials) and/or livestock on the same unit of land. A large hectare is available in the form of boundaries, bunds, wastelands where this system can be adopted. Agroforestry not only helps in climate change mitigation but also climate change adaptation. Given its urgent need and numerous benefits the project stakeholders have considered this as one of the key sub activities under CHIRAAG.

Agroforestry system is pivoted on economically and ecologically sound practices with enhancement of overall farm productivity, soil enrichment through litter fall, maintaining environmental services such as climate change mitigation (carbon sequestration), phytoremediation, watershed protection and biodiversity conservation. Given the fact that the achievement of the project PDO strongly follows the integrated farming model, agroforestry becomes even more essential

Agroforestry offers double potential of agroforestry to address climate change issues;

- **Greenhouse gas–mitigation strategy through carbon sequestration** because of greater efficiency of integrated systems in resource (nutrients, light, and water) capture and utilization than single-species systems

- **Sustainable adjustment to changing conditions because agroforestry systems can be called perennial farming systems.** They maintain and develop their root and woody biomass throughout seasons while providing food, fibre, energy and vegetative cover for soils.

The main rationale and objective for including this component are as follows:

- Agroforestry driven carbon sequestration by trees contributes to climate change mitigation
- Agroforestry will lead to improvement of soil properties and controls runoff and erosion, thereby reducing losses of water, soil material, organic matter and nutrients.
- They can maintain soil organic matter and biological activity at levels satisfactory for soil fertility. This depends on an adequate proportion of trees in the system- normally at least 20% crown cover of trees to maintain organic matter over systems.
- They can maintain more favourable soil physical properties than agriculture, through organic matter maintenance and the effects of tree roots.
- Agroforestry will check the development of soil toxicities or reduce existing toxicities-both soil acidification and salinization can be checked and trees can be employed in the reclamation of polluted soils.
- Agroforestry would help in the reclamation of eroded and degraded land.
- Agro forestry can augment soil water availability to land use systems, especially in dry regions of the state.
- Nitrogen-fixing trees and shrubs can substantially increase nitrogen inputs to agro forestry systems and thus trees can increase nutrient inputs to agro forestry systems by retrieval from lower soil horizons.
- Agro forestry will provide a more diverse farm economy and stimulate the intervention village, leading to more stable farms and communities.
- Agroforestry is also recognized to have the potential towards enhancing ecosystem services through carbon storage, prevention of deforestation, biodiversity conservation, and soil and water conservation
- To promote the integrated farming systems approach

Scale of Intervention: The activity will be undertaken at a selective level and the department has proposed a target to cover **2,000 ha** under boundary plantation intervention.

Beneficiary Selection Criteria for Agroforestry:

- The farmer is a part of the community orchard and/or community badi that expresses willingness to undertake agroforestry plantations
- The individual farmer has a land of 1 acre available for agroforestry to be undertaken as intercropping with fruits and/or vegetables
- **Peripheral and/or Boundary Plantation:** Around the periphery of the farmers' fields, tree species can be grown as peripheral/boundary plantations to add more income to the farmers' basket and enrich the soli and conserve water. This will not only make effective use of the precious land for livelihood support but also for generating additional income opportunities to the farmers. It will also help in stabilising the bunds and reducing soil erosion. Bamboo and Eucalyptus plantation can be effectively planned for the selected beneficiaries where the water source is assured as well as the farmers are willing to invest the peripheries

The implementation plan for the agroforestry will be as follows:

- **Demand aggregation and mobilization of the Livelihood Group:** Post the CVDPs are made, the very next step will include mobilization of the village members through information dissemination and awareness generation about the planned intervention and its benefits.
 - The Community Coordinator, the KM and the existing field functionaries such as the RHEOs and RAEOs will initiate the information dissemination process about the intervention.
 - The cadre will mention the details of the benefits of the agroforestry to the community along with its linkage with the CHIRAAG PDO, IFS and the essential role in climate resilience and environment sustainability.

- The FPO and the Value Chain development officer as well as the Block Project Manager will partially participate in the initial first meetings of mobilization as well as conduct a full time monitoring and supervision
- The KM will identify the interested farmers and will facilitate the formation of a sub-group for agroforestry (only in cases where it is being undertaken on the fallow land/degraded land)
- **Integration with Orchard and Badi Development:** The activity of agroforestry will be integrated with orchards and badi development activity. The integration can happen in either of the ways
 - HHs developing homestead badi and/or private orchards can also raise the demand with the KM for planting the agroforestry crop; provided they have sufficient boundary area in the private farm land
 - Community members practicing badi and/or orchards can plan the cultivation of boundary plantations where in at least one acre of land is available around the boundary of the farmland
 - It is to be noted that the need for a separate agroforestry group will only be on the case basis and the same sub-group of community orchard and/or community badi can be also be considered for agroforestry as well.
- **Input Procurement:** The input procurement will be done from the existing departmental nurseries available in the CHIRAAG intervention areas:
 - The KM will collate the total demand for the inputs needed for agroforestry. The state has a list of 23 species of agroforestry, out of which preference will be given to the saplings of Saja, Arjuna and Saal for the integration of the sericulture intervention as well.
 - The KM will communicate the demand to the CC and the CC will collate the total demand across six villages of his supervision
 - The CC will then forward the total demand for the saplings to the BPIU
 - The BPM (Horticulture) will submit the request with the garden superintendent in the departmental nurseries for placing the order
 - Once the supplies are made at the BPIU level, the same will be transferred to the CC who will then supply the same to the LGs
 - The KMs will collect the seedlings from their respective LGs and will supply the same to the farmers
 - For the remaining inputs, based on the need, will be purchased from the open market, coordinated and facilitated by the KMs and the procurement group leader in the LG
 - PoPs will be delivered to the farmers containing information on planting practices, pest management, Weeding and fertilization, integration with mixed cropping system, Competitive interactions in bamboo-based agroforestry and such themes
 - The KM will ensure that all the planned inputs are being procured and the plantation activities are being undertaken at the scheduled time
- **Demonstration of Agroforestry Models:** This is one of the sub-components under training as the core delivery for capacitating the target beneficiary
 - Boundary plantation model for agroforestry will be demonstrated by the Community Coordinator, KM of that village, and technical experts from the IGKV
 - The BPM horticulture will also make visits in the village for facilitating, monitoring and overseeing such demonstration and plantations
 - The demonstration will be accompanied by knowledge dissemination on climate resilient agroforestry system & studies on carbon footprint, carbon sequestration, nitrogen fixation etc to bridge the yield gap and for extension purposes on area specific innovative agroforestry.
- **Capacity Building & Trainings:** Capacity Building and Training will be one of the important interventions of the sub-mission. Activities like training of farmers/field workers with a view to ensure

growing quality planting material, skill development, awareness campaign, Information sharing, exposure visits at local, national and international levels, seminars/Workshops at national/international levels etc. will be planned. Other than the demonstrations mentioned above, following will be the trainings to be provided to the target beneficiaries

- Video-based training and information dissemination on PoP can be practiced for quick and engaging learning
 - A kiosk can be stationed at a particular village in the selected block that would include the videos and online content for all the trainings delivered by the technical support agency and the KVKs
 - The farmers can be accessing the content in the kiosks as and when needed. For instance, a farmer planning to grow the selected crop under the Rabi season can re-orient himself with the PoP of that crop just before land preparation and sowing
- **Support from the project:** CHIRAAG is providing for the cost of growing saplings that has been included in the total cost of nursery upgradation. The project would may also hire services of Technical Service Provides, who have expertise in the particular subject.

IV. Sericulture

The art of silk production is called sericulture that comprises cultivation of mulberry, silkworm rearing and post cocoon activities leading to production of silk yarn. Sericulture in the state provides gainful employment, economic development and improvement in the quality of life to the people in rural area and therefore it plays an important role in anti-poverty programme and prevents migration of rural people to urban area in search of employment. Since income enhancement is one of the major PDO of CHIRAAG, the project stakeholders have identified Sericulture as one of the key activities proposed under the project. Following is the rationale for including this intervention in the project:

- The demand for sericulture in the state exceeds the supply
- The current state of infrastructure for sericulture is inadequate and needs to be revamped
- The silkworm pupae are rich in oil content and pupal oil is used in cosmetic industry and the remaining pupal cake is a rich source of protein suitable for poultry and fisheries, that can be integrated with fundamentals of IFS
- The silkworm litter is used for bio-gas production and used as a fuel for cooking in the rural area
- The sector has a large number of opportunities in the downstream industry from clothing to cosmetics and thus has the huge potential, given that the state ranks second in the silk production
- The intervention also aims to promote the biodiversity conservation for sustainable development of agriculture through conservation of natural genetic resources including the wild species that contribute very valuable genes for resistance to diseases and pests and tolerance to adverse agroclimatic conditions.

Intervention under CHIRAAG

The project proposes to provide support towards pre-cocoon activities through the following activities:

- Promoting systematic plantation of Terminalia arjuna (Arjuna Tree), Terminalia Tomentosa (Saja Tree) and Sal Tree through distribution of saplings of these species under the agroforestry intervention
- Providing social mobilization support through building awareness and opportunity in the sector at the stage of CVDP process and while formation of the LG so as to mobilize the farmers towards formation of cluster for undertaking the production activities
- Establishing convergence with the Sericulture Department of the state towards imparting of training to the rearers and support in upgrading their existing package of practices; for instance; training the tribal youth to become grainage entrepreneurs who could use scientific methods to rear tasar eggs.
- Post Cocoon Support – added in Value Chain Development Component

- Technical support agencies would be hired by the project to provide end to end support.

4.2.4. Nutrition Supportive Climate Resilient Livestock (NSRL)

4.2.4.1. Introduction

Animal husbandry is an important activity in the rural areas of the State which provides supplementary income to the House Holds (HHs) dependent on agriculture, as well as animal produce as a major source of protein. Livestock is the only source of income at the time of drought and other natural calamities. Livestock thus occupies a prominent position in the economy of the villagers.

Situation Analysis of Livestock and Poultry Sector in Chhattisgarh

Agroclimatic Situation and Land Use Pattern:

The state is broadly classified into three Agroclimatic zones, comprising Northern hills (Koria, Sarguja and Jashpur), Central Plains (Korba, Raigarh, Bilaspur, Janjgir, Raipur, Durg, Mahasamund, Kabirdham, Rajnandgaon and Dhamtari) and Bastar Plateau (Kanker, Bastar, Narayanpur, Bijapur and Dantewada). The Chhattisgarh plains occupy about 54% of the geographical area and share in total cattle population is 55.8%. However, permanent pasture land is only 0.7%, whereas Bastar plateau and Northern hills occupy 46% area with pasture land of 5.7% (Table 1). Permanent pasture land is depleting fast, possibly due to overgrazing, crop encroachment and land acquisitions.

Table 1: Land use pattern in Chhattisgarh

Agroclimatic Zones	Geographical Area (000 ha)	Land Use (%)						Net Sown
		Forest	Non-Agricultural	Barren / Uncultivable land	Permanent Pastures	Cultivable Waste	Fallows	
Chhattisgarh Plains	7,494	33.3	6.3	1.9	0.7	2.0	3.5	44.2
Bastar Plateau	3,263	65.2	2.4	15.2	2.4	5.2	2.1	20.1
Northern Hills	2,847	47.0	4.5	4.4	9.5	0.2	4.5	30.0
Total CG	13,603	43.8	5.0	5.6	6.4	2.4	3.3	35.5

Animal Distribution Pattern:

Agriculture in Chhattisgarh is dominated by the small landholders and the landless. Out of 3.6 million rural households in the state about 18% are landless, 24% are sub-marginal and 19.5% are marginal. These constitute the rural poorest of poor. However, the distribution pattern of animals indicates that 42.8% of small ruminants and 67.9% of backyard poultry are reared by these sections together (Table 2). Small and semi medium farmers account for 50.6% of cattle and 52.4% of buffalo population. This clearly indicates that any poverty alleviation program for rural area in agricultural sector should include Animal Husbandry as a major component. By doing this it is expected to increase productivity and profitability of these poor farming communities bringing them out of the poverty cycle.

Table 2: Distribution of land holdings in Chhattisgarh¹³⁰

Category	% household 2003	Cattle	Buffalo	Small Ruminants	Rural Poultry	Pig
Landless (0.002ha)	17.6	0.3	0.2	0.7	2.5	11.1
Sub-marginal (0.002-0.5ha)	24.0	14.2	6.7	17.8	14.6	22.1
Marginal (0.5-1ha)	19.5	19.5	15.7	24.3	50.8	24.7
Small (1-2 ha)	19.8	25.0	34.8	23.7	19.6	9.4
Semi medium (2-4 ha)	13.8	25.6	17.6	27.2	8.7	19.2

¹³⁰ Department of Animal Husbandry and Livestock CG

Medium (4-10 ha)	4.7	12.9	19.6	6.3	3.7	13.3
Large (> 10 ha)	0.5	2.4	5.4	0.0	0.0	0.0
Total	100	100	100	100	100	100

Farm mechanization is increasing steadily for large and medium landholders and comparison between 1997 and 2003 livestock census indicates 3.7% and 17.8% decrease in male cattle and buffaloes respectively (Table 3).

Table 3: Livestock population in Chhattisgarh (in thousands)¹³¹

Livestock species	Population ('000)						
	1997	2003	% Change	2007	% Change	2012	% Change
Total Cattle	8785	8882	1.1	9459	6.50	9811	3.72
Male	4643	4469	-3.7	4771	6.76	4832	0.28
Female	4142	4413	6.6	4688	6.23	4979	6.21
Total Buffalo	1942	1596	-17.8	1599	0.19	1390	-13.07
Male	1396	1077	-22.9	1007	-6.50	790	-21.55
Female	546	519	-04.9	592	14.60	600	1.35
Goat	2154	2336	8.4	2761	18.15	3225	16.81
Sheep	196	121	-38.1	140	15.70	166	18.57
Pig	456	553	21.3	412	-25.68	439	6.55
Poultry	6771	8181	20.8	14207	73.66	17955	26.38

Source: 16th, 17th, 18th and 19th Livestock Census of India (19th Census figures are provisional/interim)

Livestock and Poultry Population Status:

Chhattisgarh is very rich in its livestock wealth with 1.27 crore animals (Table 3 & 4) against 2.08 crore human population. Cattle population is the highest with 64%, followed by goats (16%), buffaloes (14%) and sheep and pigs being the lowest (6%). Animals, in general, are smaller in size with poor production potentialities, due to poor genetic potential coupled with inadequate availability of feed and fodder.

Livestock is an important source of livelihood for the land constrained poor households, especially in marginal environments. At the state level, the livestock sector contributes about one fourth to the agricultural income but is subsistence-oriented. The livestock in Chhattisgarh is an integral part of mixed crop-livestock system, where crop production meets most of the feed and fodder requirements of animals and they provide draught power and dung manure for crop production. Such a synergy is considered beneficial for sustainability of crop and livestock production, and household food security. Distribution of livestock holding is more equitable compared to land, indicating that the poor have more opportunities in livestock production compared to crop production.

Table 4: Animal Distribution in three agro-climatic zones¹³²

Particulars	Northern Hills		Central Plain		Bastar Plateau		Chhattisgarh	
	17 th Census	19 th Census	17 th Censu s	19 th Censu s	17 th Censu s	19 th Census	17 th Census (Lakh No.)	19 th Census (Lakh No.)
Part A: Share in livestock population in %								
Cattle	26.7	17.86	55.8	63.06	17.5	19.08	88.82	96.35
Buffalo	28.7	20.20	57.3	62.26	13.9	17.55	15.96	13.90
Goat	45.9	34.39	31.5	44.41	22.6	21.21	23.36	32.25
Pig	26.6	19.32	14.0	18.84	59.4	61.84	05.53	4.39
Poultry	24.8	9.74	50.3	74.20	24.9	16.06	81.81	179.54
Part B: Livestock density (Number / 100 ha of the net sown area)								
Cattle	178	210	176	188	170	292	175	210

¹³¹ Department of Animal Husbandry and Livestock CG

¹³² Department of Animal Husbandry and Livestock CG

Buffalo	36	34	34	27	26	38	33	30
Goat	84	133	27	43	61	107	48	69
Pig	12	10	3	2	38	42	11	9
Poultry	160	209	153	404	234	450	170	384

Livestock and Livelihood:

Livestock is raised as a part of mixed farming systems and is closely associated with socio-economic and cultural ethos of the farming community. In subsistence production systems with underdeveloped markets, the livestock producers are often the consumers of livestock production and contribute significantly to household nutrition security. Livestock is important assets available to the poor, which can easily be liquidated, compared to land and buildings, into cash during emergency and crisis. This is especially so in drought and dry spell areas. Except cattle and buffalo, the short generation interval and high prolificacy of other livestock species coupled with low initial investment and operational cost make it a viable and suitable enterprise for the poor.

Livestock is important to source of manure and draught power, which are vital to preservation of soil fertility and improving soil fertility and improving crop production. In addition, as local transport, draught power is an important energy source saving in petroleum-based fuels. Livestock thus contributes to sustainable intensification of farming systems especially of smallholders who lack capital to purchase chemical fertilizers and other inputs. Finally, by recycling agricultural residues (straw and stovers) as feed, they save land for food production, which otherwise would have required to produce green fodder and feeds.

Table: 5 Per capita availability of major livestock produce in Chhattisgarh¹³³

Livestock Produce	2001-02	2015-16	% Change	National Average (2015-16)
Milk in gm / day	104	132	26.92	295
Egg in No. / year	37	57	54.05	57
Meat in Kg / year	0.46*	1.56	239.13	4.27

*Corrected figure includes estimated poultry meat

Gender Equity in the Livestock Sector:

Livestock contributes to women empowerment because there are more ownership and involvement in decision making process regarding livestock-related matters than land and other fixed assets of the household. In India, as well as Chhattisgarh, gender equity is more pronounced in livestock sector, as women participants account for about 70% of the labour force while it is only 33% in crop farming. In India, as many as 75 million women are engaged in the sector as against 15 million men. Livestock forms a part of women's daily routine like feeding, watering, calf management, cleaning animals and sheds and in some areas milking and selling of milk. The extent and nature of their involvement, however, varies within and between regions.

Rationale and Objective of including livestock interventions under CHIRAAG

Livestock could emerge as an important source of income and employment for the rural poor. They act as a buffer against income shocks of crop failure which is a frequent phenomenon in Chhattisgarh. Livestock provides a continuous stream of outputs and thus income from livestock helps consumption smoothening. Species like poultry, goat, sheep and pigs are of short-generation interval, have a high prolificacy rate and require less land, investment and operational expenses and are better suited to the resource endowment of the poor. Cattle and buffalo are an important source of manure and draught power, which are vital to improving crop production and environment.

¹³³ Department of Animal Husbandry and Livestock CG

Given the importance of livestock in improving the income and nutrition level, the livestock interventions form a key component under the IFS strategy in the project. The objective of this sub-component is integrated into the fundamental objective of CHIRAAG:

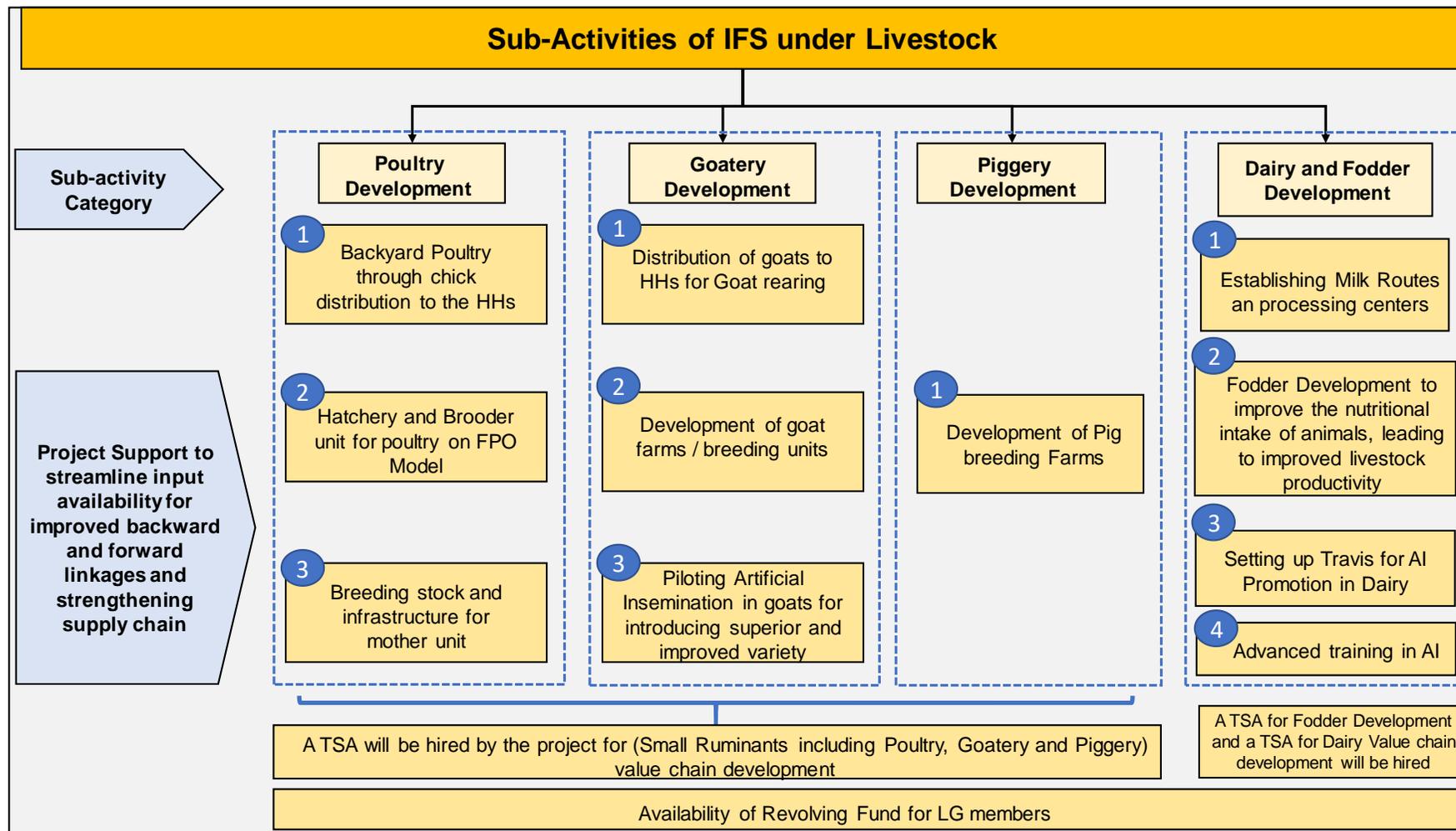
- To boost the income of target households, in the selected tribal areas, through providing the HHs with the opportunity to build the self-sustainable livestock ecosystem underpinned by the IFS model, and/or improving and enhancing the efficiency in production, service delivery systems, and the overall practice of livestock keeping;
- To leverage the livestock ecosystem to promote the consumption of a nutritious diet, rich in animal protein to successfully improve dietary diversity and eliminate malnutrition.
- To enhance the production and productivity of the small ruminants' sector (poultry, Goatery and piggery) through streamlining supply chain (strengthening the input ecosystem), promoting breed improvement and improved practices of livestock rearing and management
- To develop strong grounds for enabling value chain development for the key livestock activities as planned under the project; support in creating forward market linkages in the form of establishing primary processing centres based across select blocks and feasibility studies
- To strengthen the backward and forward supply chain for Poultry, Goatery and Milk so as to lead to its value chain development

4.2.4.2.1. Phasing in strategy

The detailed year-wise phasing plan of the sub-component along with the number of beneficiaries covered in each year is given in the table below

Key Activity	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Chick Distribution for BYP	HHs	-	55,000	55,000	40,000		-	1,50,000
Breeding stock and infrastructure for mother unit	Lumpsum	-	1	-	-	-	-	1
Setting up Travis for AI promotion in dairy (1 per village)	Village	-	200	280	240	-	-	720
Goat Breeding Farms (10+1)	Farm Units	100	1,000	500	200	-	-	1,800
Support to individual HHs for one female goat	HHs	5,000	20,000	20,000	10,000	5,000	-	60,000
Pig breeding farms (5+1 model, 50% ben contribution)	Farm Units	-	30	30	40	-	-	100

Sub-activities of IFS under livestock



Under livestock as one of the key activities integrating and converging with the strategy of IFS, CHIRAAG is focusing on the following sub-sectors within its purview of interventions along with the rationale for the selected sub-sectors.

1. **Poultry Development:** The project envisions to strengthen and upgrade the poultry supply chain in the select areas and thereby improve the production and consumption through enhanced availability of poultry birds, primarily targeted for meeting the nutritional needs and farm activity diversification. The project is attempting to undertake a holistic approach of addressing the challenges from supply side and also connecting the production of chicks with the consumption needs of the target HHs. The poultry includes chicken, and other birds such as quail, turkey among other indigenous varieties identified.
2. **Goatery Development:** The project envisions to increase the supply of goats for breeding as well as rearing, improve the quality of breeds, introduce better breeding and goat management practices and thereby enhance the availability of goat meat and milk to meet the nutritional requirement as well as diversified farm income.
3. **Piggery Development;** The project envisions to focus on the introduction of superior breeds and improved income through sale of pigs. Also, the convergence with the state scheme would ensure linkages with the HHs for purchase of pigs for self-consumption to meet the nutritional requirements.
4. **Dairy development:** The project focusses on developing the daily value chain through establishment of milk lines and processing facilities as a part of post-production activities under the dairy sector. To ensure the enhanced availability of milk (a part of pre-production and production) focus on fodder development and delivery of training in AI in large animals and support infrastructure (travis) would be provided by the project
5. **Fodder Development:** This sub-sector not only supports the development of dairy value chain, but also is focussed on improving the supply of fodder through promotion of fodder plantation and post-harvest value addition to meet the higher demand in the state.

Following are the sub-objectives for various activities planned under the livestock:

- Promote the existing scope, potential of livestock as per the needs and requirements of the different agro-climates.
- Enabling the HHs to build the self-sustaining livestock ecosystem through the distribution of chicks and goats
- Distributing new and superior varieties of male/ female goats and other small ruminants for enhancement in the livestock productivity
- Promoting the breed improvement through Artificial Insemination
- Improve livestock productivity and reduce animal mortality through improved accessibility to the health, vaccination, veterinary and other extension services
- Promoting and encouraging backward integration in the poultry supply chain through the expansion in the capacity of Mother Units (MUs) of the existing government farms as well as establishing Hatcheries and Brooder Units
- Increasing the capacity and upgradation in the existing infrastructure of the milk routes across the CHIRAAG blocks, establishing new milk routes across potential blocks through investing in chilling and cooking units as well as developing the milk processing facilities
- Encourage marginalized and weaker sections of the targeted areas to organize themselves into commodity specific sub-groups
- Increase the overall production of the fodder, introduce the newer and more nutritious fodder varieties
- Improve the quality and nutrition content of the fodder and the feed through post-harvest value addition of fodder to improve the livestock productivity
- Improving nutrition outcomes, reduce stunting in children

- Promote dietary diversity (eggs, meat and milk consumption) in adolescent girls and women of childbearing age
- Ensure year-round access to adequate protein-rich nutritious food to increase per capita protein intake at the household level.

I. Poultry Development

Poultry egg and meat are important sources of high-quality proteins, minerals and vitamins to balance the human diet. For implementing the poultry development plan under CHIRAAG, the project design pivots on the strategy of building a self-sustaining model of FPOs who manage the entire supply chain for poultry development, post the facilitation and handholding support extended by the TSA under the project. This intervention aims to cater primarily to the PDO of nutrition through increased consumption of eggs and chicken by the target HHs.

The poultry sub-sector in the project location has a myriad of issues and/or challenges due to which it was considered to the activities to address some of the pressing challenges. Some of the key challenges in the poultry sub-sector are as follows:

- Inadequate capacity for breeding and rearing the poultry birds
- Knowledge gaps among the farmers towards good practices of poultry management leading to poor quality of rearing and high mortality rate of poultry birds
- Inadequate availability of infrastructure such as hatchery and brooding units that form a major gap in the poultry supply chain
- Low supply compared to demand for poultry for consumption to meet the nutritional needs

CHIRAAG envisions to streamline and improve the supply chain of poultry in the select blocks and enhance the availability of chicks for distribution to the HHs to primarily promote the intake of eggs and meat. Following is the rationale for including the intervention under CHIRAAG

- The poultry intervention will promote the nutrition intake among the HHs through increased consumption of eggs and chicken
- Chicken manure contains a good deal of nitrogen, phosphorus and potassium
- Poultry is recognized for being among the “greenest” meats, using up less resources and emitting less greenhouse gases than larger livestock; and therefore, can support farmers to earn good income and help build a sustainable, climate-smart food system.
- Poultry development will also enhance the income earning opportunities for the FPOs managing the poultry set-up units

Following are the key sub-activities that are included under the sub-sector of poultry development

- **Increase in the availability of breeding stock** of poultry birds to be layered at the mother units
- **Expansion in the existing capacity of the infrastructure related to mother units** in the existing government farms to ensure that the breeding stock can be layers upto 6 months before being transferred to the hatchery
- **Setting up of hatchery and brooding units for the poultry birds through the FPO model** (leveraging the funds allotted to the FPOs)
- **Chick distribution to HHs for Backyard Poultry (BYP)**

The **broad implementation strategy for poultry sub-sector** is as follows:

- The process of VDPs and micro-planning will lead to the creation of poultry sub-groups within the LG –constituting the tribal, PVGTs, and other marginalized and economically backwards classes and women population across the target regions who are interested in undertaking backyard poultry.
- Parent stock for the poultry will be procured and necessary infrastructure (related to mother units of the existing government farms) investment would be funded by the project

- Simultaneously multi-commodity FPOs will be established where poultry would be one of the activities undertaken by the FPOs.
- These multi-commodity FPOs will manage the supply chain of poultry, establishing and managing the hatchery and brooding unit on the commercial revenue earning model.
- Post hatching and brooding, the 28 DoCs will then be distributed to the HHs (through the LG) for the purpose of BYP
- The community cadre and the Pashudhan Sakhi (PS) will be responsible for managing and monitoring the BYP on day-to-day basis
- The entire supply chain of the poultry; hatchery, brooder unit as well as the market development will involve technical and management assistance and oversight by the TSA hired for the development of small ruminants (Goatery, Poultry, Piggery) value chain

Beneficiary Selection Criteria

Scale of intervention under poultry sub-sector: The project envisions to target 1,50,000 HHs through distribution of chicks. Following will be the selection criteria

- HHs who are willing to undertake backyard poultry as one of the project activities
- HHs who have requisite space in their backyard
- HHs who are willing to pay the cost INR @25/- (or required beneficiary contribution) per chick
- Preference to be given to the small and marginal farmers belonging to the tribal class

Implementation Plan

Following would be the process of implementation for Poultry Development under the livestock activity

- **CHIRAAG Village Development Planning:** A detailed livestock planning exercise will be rolled out at each HH level for gauging the current availability and need for the livestock resources (poultry, small ruminants, goats). This will form the fundamental basis for the intervention.
- **Community mobilization through concept seeding:** A participative community-based planning process will be conducted across each intervention village to facilitate the identification of interested poultry farmers/farmers and the nutrition standards of the community.
 - A meeting will be convened at the LG level where the interested individuals would participate, and details of the planned intervention would be shared by the project stakeholders
 - The meeting would include detailing and discussing the benefits of practicing backyard poultry and explaining its role in the IFS model to achieve the project objective of nutrition enhancement
 - Awareness generation would be carried out by the field functionaries, Pashudhan Sakhi (PS), and selected representatives from the CHIRAAG Resource Centre (CRC), the Community Coordinator, and supervised and monitored by the BPM
- **Formation of hamlet based sub-groups for Backyard Poultry within the LG:** Once the community mobilization has gained significant momentum the interested members in the target village will aggregate to form the informal sub-group as a representative of the members undertaking backyard poultry activity
 - The sub-group will be managed by the PS in each LG and will also have functionaries such as the Board of Directors (BoDs), President, Secretary who will be the part of the LG and would be responsible for undertaking systematic processes across areas.
 - The Pashudhan Sakhi will be responsible for registering and maintain the database of all the farmers who are interested in poultry and a copy of such database will also be maintained by the CCs.
- **Selection of community cadre:** One PS at each of the village will be selected from the Community and would be responsible for monitoring regular health of the chicks post they are distributed

among the HHs. Each of them can cater to about 50-80 HHs and perform regular monitoring of the chicks in terms of their health, disease and regular vaccination. The PS would also be assisted by the existing community cadre present in that village depending upon the number of HHs to be catered in that village. Following will be the selection criteria for the selection of the PS:

- She/he has to be a member of an SHG/FIG in the targeted area
 - She/he should have some previous experience of livestock management
 - She/He should be literate (basic reading, writing and maths; at least till 8th standard)
 - She/He should be willing to work with and for the community for improving the production and productivity of the livestock
 - She/He should be within the age of 25-45
- It is pertinent to note that the PS will manage all the informal sub-groups under the livestock as well as the fisheries sector within that LG. The selection process for the same would be as followed:
 - Discussion in the LG regarding the recruitment of the PS to be undertaken
 - The concerned LG will identify at least three to four prospective resource persons with the support of the community mobilizers and other members for the CRC
 - The identified members will undergo a basic reading and writing test conducted by the CC and BPM to assess the basic literacy and basic knowledge about the sectors
 - Post the assessment, she/he would receive an orientation at the block level regarding their roles and responsibilities as expected under CHIRAAG
 - Based on the feedback received from the trainers, the LG board committee would select the PS
 - **Onboarding of TSA for development of small ruminants (Goatery, Poultry, Piggery) value chain:** The TSA will provide be responsible for the following set of activities for developing the poultry supply chain across the target areas:
 - **Conducting Dipstick Study:** The TSA will conduct the following assessments
 - A quick study to gauge the existing supply mechanisms for fertilized eggs supplied by the government farms in the state
 - Location and feasibility analysis for assessing the establishment of hatchery and brooder units in alignment with the emergence of the poultry sub-groups across the LGs
 - **Facilitation in the formation of the FPOs for Poultry:** The TSA will extend support in the formation of FPOs. The project has proposed to hire a TSA specifically involved in the process of FPO formation across the entire project.
 - **Overall Technical Support for managing the poultry supply chain:** This will include the following activities:
 - Support in the preparation of business plans: Based on the feasibility assessments, the TSA will closely assist the FPOs in drafting the business plan and a commercial revenue model for the poultry supply chain
 - The TSA will provide and train the FPOs in introducing and adopting scientific package of practices of broiler rearing, about application of different medicine and protection measures which is not only systematic as well as scientific.
 - Support towards following a production schedule based on significant market fluctuation and competition for output market as these set-ups will be based on revenue earning models.
 - To build capacity of the FPOs towards sustainable practices and marketing through concept sharing, workshops, skill up gradation training and exposure visits and accompaniment support
 - To develop backward and forward linkage for sourcing of input materials and marketing their products and ensuring sustainability of the activity

- **Formation of multi-commodity FPOs:** While the mobilization, micro planning and VDPs are being prepared the TSA hired for the formation of FPOs would also begin to develop multi-commodity FPOs and poultry development will be one of the key activities undertaken by the select FPOs. The project proposes to form 28 multi-commodity FPOs. (detailed out later)
- **Approval of Poultry Business Plans and Fund Disbursement from SPMU:** Once the business plans are prepared by the FPOs and validated by the TSA, the plans along with the demand application for the funds will be sent to the SPMU. Following will be the process:
 - The Plan along with the application will be validated by the BPIU and then it will be forwarded to the DPIU
 - The DPIU will approve the plan, acknowledge the fund demand application and will forward the same to the SPMU
 - The SPMU in close coordination with the livestock department will review the plan and based on that will provide approval for releasing a certain tranche of money from the project allocated kitty for each FPO
 - The funds will be directly disbursed to the bank account of the FPO
- **Procurement of Breeding stock and infrastructure for mother unit**

Rationale for this activity: To achieve the objective of providing input support for the development of poultry hatcheries and brooding unit, the project has proposed to invest in procurement of poultry parent stock and infrastructure upgradation at the mother units for layering the parent stock before it gets ready to be shifted to the hatchery and brooder units.

- **Purchase of the parent stock:** Based on the requirement assessment, the parent stock procurement would be made by the SPMU and managed by the TSA who would oversee the entire activity.
 - One DoCs parent stock chicks of improved species of broiler will be procured from the reliable parent stock suppliers.
 - Care must be exercised while selecting and procuring the parent stock chicks as the quality of the eggs and hen will depend on them and therefore the parent breed should be of superior, indigenous and highly nutritious variety
- **Investment in the upgradation of mother unit capacities:** Based on the expansion needed, vendors would be hired to construct sheds and layering shelters for the parent stock. The procured chicks will then be transferred to poultry sheds/mother units.
- **Purchase of supplies for layering the chicks:** This would include the cost of purchasing chick feeds, medicines and other essential supplies. These poultry birds are given balanced nutrition like poultry feed, feed mixes, medicines, etc., depending upon their age and variety up to laying stage.
- **Establishment of hatchery and brooder unit:** The rationale for this activity includes:
 - To create support infrastructure / supply chain linkages for enabling the hatching of the poultry birds from the additional parent stock procured and layered at the government mother units
 - To ensure the quality hatching, brooding facility and overall effective chick management ensuring good quality of chicks are available for distribution to the HHs

After the approval of the business plan of the FPOs, the funds will be disbursed by the SPMU and the FPOs will draft the input procurement plan assisted and supported by the TSA. The TSA will closely monitor and assist the FPO to select the right and good quality vendors for the procurement of the following inputs

- **Hatchery Units:** Based on the total number of chicks targeted to be distributed, the FPO and the TSA will plan for the capacity of the hatchery along with the necessary technical specification. The vendors will be selected accordingly, and procurement will be done

- **Brooder Farm Construction:** Based on the number of chicks to be brooded, the farm material of shed and other infrastructure will be procured
- **Procurement of fertilized eggs:** This will be procured from the existing government farms after being layered for 6 months from the parent stock supplied through the project investments in the mother unit.
- **Procurement of operational supplies:** This will include the supply of feed, fodder, medicines, and other daily requisites needed for the daily supply for maintenance of good health and quality of the DoCs
- **Hatchery Management:** Following will be the operational plan for establishing and running of the hatchery unit by the FPO along with the scientific management practices as provided and trained by the TSA. After the fertilized eggs are collected from the mother units, they will be transferred to the hatcheries set-up and managed by the FPOs
 - The eggs will be cleaned thoroughly to get rid of foreign matters and checked for their suitability for hatching, eggs having cracked shells and unfertile eggs are segregated and disposed of by selling at subsidized rates.
 - Thoroughly cleaned eggs are stored in the air-conditioned room in order to bring down normal to a suitable temperature.
 - The conditioned eggs are transferred to setter incubators and incubated for 18 days. A temperature of 99.9°F and relative humidity of 82% is maintained in the setter incubators.
 - At the end of 18th day, eggs are transferred to holder incubators maintained at a temp. of 98.9°F and relative humidity of 87% and incubated for 3 days.
 - At the end of 21 days, chicks come out after breaking eggshells. Eggshell and membranes are removed, and each chick is checked for its sex and separated out.
 - Each chick is vaccinated by Marex-D vaccine and packed in chick baskets and are sold to the poultry farms.
 - The hatchery would therefore, supply the DoCs to the brooder units which will be reared for 28 days and then will be supplied to the HHs for egg and meat.
- **Brooding and rearing of chicks:** The project stakeholders have opined to include quail, turkey, coloured birds among the regular poultry birds as they are currently not covered under any scheme of the state. The chicks from the hatched eggs will be reared in the brooder unit for 28 days and select a willing individual (member of the multi-commodity FPO or one from the LGs of a village) could be chosen to run and manage the brooder unit under the supervision of the FPO and the TSA for small ruminants.
 - **Feeding management of the chicks:** The chicks need balanced feed during the initial 6 weeks of age (the initial 4 weeks will be at the brooder). The average body weight of 1.5 to 2.0 kg will be attained up to 5 weeks and if required should be provided with supplemental calcium sources like lime stone powder, dicalcium phosphate (DCP), stone grit, shell grit at 4 to 5 grams/bird/day.
 - **Floor space requirement:** The chick should be provided enough feed and floor space. Overcrowding results in stress and mortality chick requires 8 square inches of feeding space
 - **Ventilation:** Brooding will cause depletion of oxygen and build-up of carbon dioxide, ammonia etc., the airtight curtains should be avoided. It is recommended to keep a gap of 3.5 inches between the ceiling and side curtains to facilitate gas exchange between the house and environment.
 - **Health Management:** The night shelter should have good ventilation and protection from predators and plenty of clean water should be made available. The birds must be vaccinated against Marek's and Ranikhet diseases.
- **Distribution of chicks to the HHs:** The distribution of the chicks to the HH beneficiaries would be done by the PS and will be monitored from the representatives from the CRC apart from being

monitored by the CC. The PS will be responsible for coordinating with the brooding unit at the select location, via the CRC, CC and the BPM to ensure that chicks are being distributed as per the schedule in the micro-plan. Following activities will be undertaken

- Lot Planning and Scheduling: Based on the total number of HHs across the target village and the production turnaround from the hatchery and brooder unit, the FPOs will plan and schedule the chick distribution to the beneficiary. The details regarding the same will be mentioned in the operational manual prepared by the TSA and the FPO
- Procurement of 28 DoCs from the brooder unit: Based on the region-wise demand (as elicited in the micro-plan) the beneficiaries will be distributed the chicks
- **Fund flow arrangement:** The project proposes to provide 20 chicks to the target HHs at the cost of INR 25/- per chick (50% subsidy to the total cost of INR 50/- for each chick). The flow of funds would be as follows:
 - Based on the planning done in the annual operational plans of the LGs, the PS will inform the brooding unit for the total quantity of chicks needed in a particular village
 - Based on the estimated schedule of arrival of chicks, the HHs would pay to the PS the subsidized cost @ INR 25/- per chicks based on the number of chicks received in one lot, upto a maximum of 20 chicks per HHs
 - The PS would enter the details of the HHs in the books of operations and will arrange for the transportation of 28 DoCs from the brooding unit, with support from the CRCs, Gothan Committees and the BPMs
 - Depending upon the proximity of the brooding unit and the village, the PS will either handover the money to the entrepreneur managing the brooding unit and will ensure the transportation of the chicks to the HHs; or would collect the money and handover it to the nodal CRCs who could then collect the money from multiple (say 4-5) villages and transfer the same to the entrepreneur running the brooder unit
 - A manual database of all the transactions would be maintained to ensure transparency in the process
- **The organisation of Pashumela for the HHs:** The PSs along with the members of the poultry sub-committee from the nodal CRC will be facilitating the organisation of the pashumela where variety of poultry birds and small ruminants will be sold. The HHs will be mobilized to purchase the poultry units of different birds (quail, turkey, coloured birds among others). The mouther unit can focus mostly on rearing the chicken birds while depending upon the demand for other birds, community decision for procuring the D-o-C can be taken.
- **Training, Capacity Building and Demonstration:** Training will be provided at the Nutrition cum Farmer Training Centre which would consist of flip chart, projector and will be leveraged for conducting training and demonstrations. Training would be provided in ToT mode to all the group members, a pool of trainers would be developed at the district level. These resources will in-turn train the field functionaries at the block level. The field functionaries would train the PS who under their supervision will guide the members in all the operational activities.
 - A training cum-orientation program will take place at the time of activity planning and prioritization to prepare the district and block team leads and the corresponding representatives by onboarding them with the interventions; its objective, approach, strategy, processes and roles and responsibilities of the key stakeholders.
 - An orientation program will be organized for DPM, Managers Off Farm and BPM in the SPMU by the State Project Manager, representatives from the CRC.
 - Convergence with the department of animal husbandry and livestock will be done, where the nodal technical assistance officers would visit the Nutrition cum Farmer Training Centre to delivery and monitor the selected training sessions
 - Trainings would be provided broadly on two key areas:

- Conceptual framework of the IFS approach for managing activities, the concept of nutrition supportive and climate resilient livestock
 - Technical training on poultry management, good practices of BYP etc.
 - Low cost model demonstration will be provided by the TSA where some of the beneficiary HHs will be considered as prototype for demonstrating the shed management and best practices for backyard poultry
 - Lead farmers would be selected for undertaking demonstration activities. The criteria could be; the space availability in the back yard, the farmers willing to uptake poultry activity in the initial years so that the demo can be scheduled, the availability and access with the farmers of some low cost materials (such as bamboo) for constructing sheds in the backyard and such others factors based on case
 - The selection of the lead farmers would be done through a collaborative approach where the CC, PS and members from the LG would participate; while CC would be mostly involved in the meetings for setting criteria for selecting lead farmers, while the PS and the active members from the poultry hamlet would be involved on daily-basis
 - Scheduling of the demonstration will be done and as per the plan the demos will be conducted by the CCs and closely assisted by the PSs who would be trained by the CCs as the master trainer
- **Management of Backyard Poultry by the HHs:** The backyard poultry would be fully managed by the community members at the household level. Following activities will be undertaken towards management of the backyard poultry
 - **Feed for the poultry and manure for crops:** Post the chicks are bought by the HHs, the feed would be provided by either the kitchen waste or Badi waste generated at the HHs or by the feed available in the CRC as per the demand. Further, poultry manure has high manure value and can be used for increasing yield of all crops. In coordination with the PSs the poultry manure will be provided for the agriculture and horticulture practices for Integrated Farming System.
 - **Rearing of poultry and production:** Individual member will rear the female chicks for 18 months for egg production and the male chicks could be either consumed after two months or sold out after reaching a bodyweight of 2-2.4 Kg.
 - A hen starts laying eggs post five to six months of rearing and provides an average 150-180 eggs in a year. After meeting the HH consumption and nutritional need the individual HHs can sell the eggs either to the mother units or in the local markets
 - The HHs will adopt standard rearing practices including vaccinations to be conducted at the HH levels, regular administration of de-worming medicine, building nestling units etc. PS will extend the necessary assistance for rearing the chicks and will be supported by the visiting veterinarian of the block.
 - The PS will be responsible for on-field monitoring of the chicks and will take care of its weight and health
 - **Poultry Sales:** PS along with community cadre would be responsible for aggregating the surplus eggs and/or poultry birds from the individual HH members of the PPGs to supply in case of institutional orders
 - Small canteens, canteens run by the Bihan centers, Anganwadi centres, schools running mid-day meal programs and small hotels could be targeted for institutional sales
 - **Subsequent cycle of procurement:** Based on the demand and the capacity of the mother unit, the next cycle of procurement of DoC shall be initiated by the BPM/Nodal CRC

Cost Summary of the Intervention

INTERVENTION	Beneficiary	INPUT COST (INR)	PURPOSE OF FUND
Chick distribution to farmers for BYP	1,50,000 HHs	7.5 Cr.	Provision of 20 chicks of INR 50 each, to HHs at subsidized cost (50%) of INR 25/- per chick
Breeding stock and infrastructure for mother unit	-	2.0 Cr.	Livestock Department will procure from CPDO. The fertilized eggs will be fed into the hatchery unit for hatching of the DoCs
Note: The Cost of hiring the TSA for small ruminants has been included under the value chain development section			

II. Goatery Development

The fact that goats are largely reared by poor to the poorest section of the society was realized pre-independence and was called by the father of our nation – poor man's cow. The goat husbandry is characterized by relatively low inputs in feeding, breeding and housing with higher return in terms of meat output. It is more gender-equitable and easily managed the domestic livestock species. Goat milk has proven superiority over cow milk because of its low and smaller sized fat globules making it ideal for small babies and sick people. The goat also has special browsing ability and does not compete with large ruminants for nutrition.

All in all, goats are an important provider of subsidiary income to the farming community and provide the cushion when crops fail due to low rainfall and other natural calamities. Since goat rearing is having a tremendous impact on livelihood of poor people, CHIRAAG recognizes that it is essential to undertake the following interventions under the Goatery development activity for livestock sub-component under NSRPS.

The Goatery sub-sector in the project location has various technical and commercial issues due to which it was considered to be included in the intervention activities to address some of the pressing challenges. Some of the key challenges in the Goatery sub-sector specific to project location are as follows:

- Inadequate availability of superior goat breeds in the select location; lack of improved genetic animals
- Inadequate number of goat farms to meet the increased demand for goats for nutritional intake
- Lack of scientific management practices of the goat farming and rearing system
- Health challenges like Peste de Petits Ruminants (PPR) and Contagious ecthyma, leading to high kid mortality and low productivity
- Poor commercial value chain of goat in spite of the fact that blocks like Mungeli, Bhairamgarh, Narayanpur, Bastar and has an adequately high goat population
- Poor linkages of the goat farmers with the local markets
- Lack of proper scientific information regarding establishment of commercial goat farms
- Low integration of IFS model including livestock among other agro-based activities in the project areas

Following is the rationale for including goat farming as one of the key interventions under the project:

- To strengthen, foster and promote the development of goat value chains.
- To improve the production and productivity of goats; goat is a multi-purpose animal producing meat, milk, hide, fibre and manure.
- To include goat rearing as one of the key activities under IFS model to enable increased income through activity diversification as well as improve the nutritional intake through consumption of goat meat by the HHs

- Goatery has been identified as one of the activities that can be relatively practiced easily by the landless, small and marginal farmers because they can thrive well on variety of low-cost leaves, shrubs, bushes, kitchen waste etc, thereby aligning well with the principle of IFS
- Goat farming has proved to be a profitable occupation for a farmer and will fit well into mixed farming.
- There exists high demand for goat meat in the tribal dominated areas of the state
- Goat farming can be undertaken across various agro-climatic conditions which prevails in the state and can be raised in plains, hilly tracts, sandy zones and at high altitudes.
- Compared to the larger animals, goats are smaller in size and therefore can be accommodated in a relatively lesser space per goat and have a younger slaughter age as a result have a high production per unit of investment.

Following are the key sub-activities that are included under the sub-sector of Goatery development

- **To pilot AI in goats**, as a first time in the states as an attempt **to improve the quality of goat breeds**
- **Development of goat farms / breeding units of 10+1 model** through 100% lending to the agri-entrepreneurs
- Provide support to **individual HHs** through **distribution of one female goats**

The **broad implementation strategy for poultry sub-sector** is as follows:

- The process of VDPs and micro-planning will lead to the creation of Goatery sub-groups within the LG –constituting the tribal, PVGTs, and other marginalized and economically backwards classes and women population across the target regions who are interested in undertaking goat rearing (HHs) and goat breeding (as entrepreneurs).
- Breeding stock for the goat will be procured through participation from the department, the TSA, the agri-entrepreneur and the select members of the Goatery sub-group
- The TSA hired for the development of small ruminants (Goatery, Poultry, Piggery) value chain will be responsible for planning activities and overall strategy for goat farm development, piloting of AI in goats and providing training and handholding support to the agri-entrepreneur
- Once the goats have been raised in the farms, the HHs (decided during the micro-plan stage and as per the operational plan of the LGs) will be provided one female goat free of cost and male goat in convergence with the state scheme (depending upon the willingness of the HHs to spend extra money over and above the convergence amount in case the cost of male goat is more than the limit under the scheme)
- The community cadre and the Pashudhan Sakhi (PS) will be responsible for managing and monitoring the goat rearing activities by the HHs on day-to-day basis
- Training and demo will be provided by the IGKV and TSA on thematic aspects (related to IFS) as well as technical aspects related to goat farming, AI in goats and demo on goat rearing of the select plots of the lead farmers

Beneficiary selection criteria for HHs: Based on the number of farms to be set up, the approximate number of goats were determined which could serve about 60,000 HHs on a 1+1 model; where a female goat will be provided by the project on grant through LG (maximum limit of INR 5000/- per goat) and the beneficiaries could purchase a male goat through convergence with the state scheme of Goatery. Further, the activities will be planned keeping in view the presence of goat population in the region and the willingness of the HHs to develop goat rearing as one of the sub-activities under IFS.

Following are the key criteria for beneficiary selection:

- The HHs should be willing to undertake goat rearing as one of the integrated activities
- The HHs should have adequate space for keeping the goat and should be willing to spend on the operational supplies needed for goat rearing
- Preference shall be given beneficiaries belonging to marginalized communities
- Preference will be given to prospects having experience of goat rearing
- Women and/or tribal applicant would be preferred

Criteria for Agri-entrepreneur Selection: Since a 100% loan would be granted for setting up of goat farms, it is important that the individual entrepreneur is willing to uptake loan and has a good knowledge in goat farm management and commercial development. Following would be the criteria for selection of the agri-entrepreneurs:

- The money will only be given on the criteria that specific breeds of doe will be bought by the agri-entrepreneur
- The agri-entrepreneur should be willing to uptake the loan and undertake goat farm management activity
- He/she should have adequate knowledge and experience in goat farming practices

Sub-activities	Beneficiary Units	Unit Size
Number of goat breeding farms (entrepreneurs as beneficiaries managing the goat breeding unit)	1800 Farms	10+1
Number of HHs managing the Goat Rearing Unit (HHs as beneficiaries as goat rearers)	60,000 HHs	1+1

i. Implementation Plan

The following will be the implementation arrangement for the Goatery development

- **Mobilization of LG into hamlet based informal sub-goat groups:** Once the CVDP are prepared, the very next step will be the mobilization of the farmers to form the LG group that will be constituted by the multiple sub-commodity group; Goatery sub-group in this case. Every LG will have a lead Pashudhan Sakhi (PS) who will be responsible for anchoring and routing all the key activities related to livestock and fisheries at the grass root level. Additionally, there might be the need to put in extra efforts for garnering the interest of the community members in the goat rearing as the members might not come forward in the very first instance. Some of the HHs in the tribal and backward community might not be fully aware of goat rearing, its importance in income and nutrition enhancement. In such cases target population would need to be mobilized through the following initiatives:
 - Conducting Focus Group Discussions (FGDs) involving selected representatives from the department for sharing the ideas and benefits on goat rearing, its importance in improving income and human and animal nutrition and an overview of the current scheme of male goat and goat unit distribution by the state government.
 - Conducting exposure visits to the districts and blocks in the nearby regions for demonstrating the goat rearing processes
 - Narrating success stories of goat rearing in areas such as Madhya Pradesh and Jharkhand as well as the improvement in the production and productivity of the goat through AI
 - Further, the key stakeholders involved in the village mobilization process include the following: members from the BPM, members from Gothan committee, PS, CVDP team, Community Coordinators, the existing community cadre of BIHAN
- **Onboarding of TSA:** The TSA will be hired for managing the Goatery intervention and provide an overall technical and management support. Following will be the key scope of activities undertaken by the TSA under the goat development intervention
 - **Conducting a dipstick study:** Will undertake detailed assessment of existing goat clusters in the CHIRAAG blocks, review of the CVDPs prepared across the village and conduct a desk research.
 - Once the key goat clusters are identified across the CHIRAAG blocks, on need basis the TSA will conduct a quick survey.
 - **Assessment of the Goatery landscape in the village:** The TSA will assess and map the as-is scenario related to Goatery across each targeted village. Following aspects among others would be assessed and mapped:
 - The average number of goats per HHs
 - The feed requirement per household,

- The source of feed and the place of grazing
- Source of drinking water for goat
- Housing of goats
- Source of breeding bucks for the farmer,
- Current availability of vaccination and veterinary facilities for the goats across each HHs in the village.
- Source of medicines for the treatment of goats (local drug, animal store drug, community para vet among others)
- **Preparation of SoPs and Operational Manual:** The TSA will prepare the detailed operational manual that will contain information on the process flow for development of goat farms, procurement of key inputs, management of farm activities, convergence with the current goat distribution scheme, schedule for training and capacity building of the farmers and such other information
- **Selection of agri-entrepreneur:** The goat farming model will be managed and owned by the agri-entrepreneur and will be basis 100% loan from the input fund that will be topped up by 1,50,000 (the unit cost for the establishment of goat farm) as the revolving fund from project. Following will be the criteria for selection of agri-entrepreneur
 - The person should be at least 10th or 12th pass
 - The person should have a good understanding of the rural landscape, Goat farming and breeding practices at the micro-level; rearing of does and bucks, types of breeds, vaccination and feeding and productivity
 - The person should have basic digital and financial literacy
 - The person should have or should be willing to open a bank account
 - Preference will be given to the women and/or tribal applicant
 - People engaged in agri-entrepreneurship hub will be given high priority
- **Region-wise orientation of the agri-entrepreneurs:** Post a final list of the agri-entrepreneur is prepared the TSA will conduct a region-wise orientation of the agri-entrepreneurs to onboard them with the idea of developing the goat farms.
- **Preparation of the Goat Farming Business Plan:** The TSA will provide a template for the plan preparation and will also initiate the preparation of few plans as samples. The Community Coordinator will assist the TSA in the preparation for the rest of the plans
- **Fund disbursement from the SPMU based on submission and approval of the business plan to the SPMU:** Post the plan preparation in coordination with the TSA, all the agri-entrepreneur across the selected villages will submit the plans and the demand application for funds to the BPIU. The LRP and the CC will be the facilitator in the process.
 - The BPIU will do a preliminary assessment and validation of the plan and will forward the same to the DPIU.
 - The DPIU in close coordination and consultation with the livestock manager will review the plan and forward the same to the SPMU for the final review, validation and fund disbursement.
 - The SPMU will assess the viability of the plans and based on the assessment, the funds will be disbursed to the bank account of the LG group, to be considered as the top-up fund over and above the input fund, to be re-paid as per the terms and conditions established in the SoPs for community lending
- **Parent stock and materials procurement as per SoP** – The project proposes to develop 10+1 size of goat farm. Based on the operational manual prepared by the TSA, the procurement for all the inputs needed for the farm will be implemented
 - The procurement of the parent stock will follow a mixed approach where the female goats can be procured at the choice of agri-entrepreneurs - from the local monthly haat market in the respective district.
 - The choice of the goats to be purchased will be based on the characteristics specified by the TSA and the community mobilizers as the indicators of superior quality of goat

- The purchase of bucks will be initiated through a camp mode: Under this case the agri-entrepreneur will be accompanied by the livestock department officer, the PS, Assistant Vet Surgeon and the paravets
 - The idea is to ensure that the beneficiary purchases only the superior male goat breed of good characteristics
 - In case of storages, the supply of the bucks can also be arranged through buck breeding farms and/or the inter-state vendors (Mathura)
 - The buck procurement can be initiated directly through the SPMU depending on the total demand and buck availability
- The agri-entrepreneur will procure the construction and feeding material for the farm supplies from the loan funds received from the LG via the SPMU.
- The procurement will be done based on the community procurement guidelines
- **Farm construction:** The TSA will support the Goatery department in establishing a model shed construction design before implementation, however the goat shed need not be in line with departmental plan as improved and low-cost models could be introduced depending upon the need and material availability. The TSA will provide guidance and inputs for preparing the best suited plan for farm construction. As soon as the breeding farms are constructed, the parent stock will be procured, and goat rearing activity will start to be undertaken. Once the activity of farm construction has been undertaken the next step would be to conduct pilot in the select farms for goat AI.
- **Piloting AI in goats:** There is a scarcity in the availability of quality breeding bucks due to early castration and slaughter of male goats for meat purpose. As goats are mostly reared by small, marginal and landless farmers, with flock size of 3- 5 goats, it is economically unviable to keep a breeding buck for a small flock. Thus, the females are bred by nondescript males' resulting in loss of precious germplasm of the region. AI in goat has been identified as one of the promising interventions to be piloted in the state for the very first time.

Following is the **rationale for piloting AI in goats** under CHIRAAG

- To add goats into the production system of the farmers in the state as one of the remedies as well as a strategy towards enhancing rural incomes as well as affordable nutrition
- To prevent the dilution of valuable germplasm by indiscriminate mating and to preserve its purity and propagate this unique germplasm,
- To promote breed improvement in goat for developing the superior germplasm and reduced inbreeding
- To improve the livestock productivity

Following will be the plan for piloting AI in goats

- **Mobilization and awareness building on goat AI:** Since the CHIRAAG interventions cut across tribal dominated villages in the state it is crucial to create strong awareness of AI in goats as the level of knowledge and awareness among the tribal population would be far lesser as compared to the non-tribal population.
 - This will be done through conducting awareness camps, group discussions and meetings across the villages to discuss the need for breed improvement and the advantages of AI in goats.
 - The success model of AI in goat in Bihar and West Bengal will also be shared with the target population
- **Piloting the intervention:** Based upon the discretion of the **TSA for small ruminants' value chain, hired under the project**, 5 farms could be piloted for conducting the AI in goats. The criteria for selection of farms for conducting the pilots would be:
 - The LG members (specifically those that are part of the goat sub-group) should be willing to uptake the piloting for goats
 - The agri-entrepreneur should have basic knowledge about AI
 - The agro-climatic zone of the area where the farm is situated should be suitable for the breed where in which the AI is being planned
 - The select farm location should be in proximity to the local markets

The TSA will have the following roles and responsibilities with regards to piloting of the AI in goats:

- The TSA will devise the overall strategy and roll-out plan for piloting the AI
- The TSA will actively participate with other LG members, CRCs and Gothan committee representatives to select the farms for conducting the pilot for AI in goats
- The TSA will provide for and supply the customized kit with advanced technology and the kits will be handed over few of the kits to PS and agri-entrepreneur (whose farms are selected for conducting the pilots) for performing the AI. The TSA will be responsible for arranging the AI kits which will contain the following illustrative items:
 - Liquid Nitrogen Tank
 - Speculum (with required specifications)
 - AI light
 - Straw Tweezers
 - Sterile Lubricant
 - Insemination Gun
 - Thaw Box
 - Straw cutter
 - Thermometer and any required specific equipment
- For all the pilots, the TSA would accompany, handhold and monitor pilot execution done by the select agri-entrepreneurs, assisted by the PS in that village
- The TSA will develop the modules and provide training to the select agri-entrepreneurs (to those on whose farms the pilot is being done as well as those entrepreneurs who are willing to attend the training). PS would also be provided training so that in case of need necessary support can be extended by them to the entrepreneurs.

Training will be delivered across following aspects as mentioned in the table below:

S.No.	Prospective Module	Illustrative Methodology	Training Delivery Objective
Module 1 Introduction	Various breeds of Goats, size and purpose wise relevance of different breeds, historical perspectives of breed	Presentation and discussions	To create awareness about productive performance and advantages of each breed
	Problems of uncontrolled breeding, Importance of Buck in breed development, characteristics of good buck, community-based selection of buck	Rice – Pulse game, Flex tool, Case studies of Sirohi & Jakhrana	To sensitize on importance of quality buck, problems in uncontrolled breeding, mechanism to control unwanted breeding
	Selection of good doe, Major terms in breeding	Doe scoring sheet	To share how win win relations can be created
Module 2 Process of AI	Buck and doe reproductive structure and functions	Presentation and Video	Understanding of value chain
	Process and precautions in semen collection		To develop understanding of breeding buck behavior and importance of proper handling
	Identification of goat in heat and right stage for AI		To help to identify right stage of heat for conception
	Fertilization process and embryo development, Pre and post AI precaution	Presentation followed by Field Visit to organisations such as BAIF Development Research Foundation	To create awareness about pre and post
	Video film on AI		
Module 3 Handing AI Processes	A.I with frozen semen	Presentations	To ensure the knowledge transfer on the entire AI procedure
	Pregnancy diagnosis and follow up schedule	Presentations	
	Interaction with an A.I beneficiary	Interviews	

Module 4 Post AI Actions	Monitoring & reporting formats and analysis, Standard technical parameters for success	Format Based Discussions	To ensure post AI care
	Action Plan & valediction	Presentations	

- **Support to individual HHs through distribution of one female goat:** While the project proposes to distribute one female goat to the select beneficiaries (upto the cost of INR 5000/-) the male goat distribution would be done in convergence with the existing state scheme of goat distribution. The project envisions to have a 1+1 model for goat rearing.

 - Based on the expected demand as collated from the CVDP and the cluster assessment done by the TSA, the department will earmark the funds to be reimbursed to the prospective beneficiary
 - The beneficiary will have to raise the demand request at the veterinary hospital situated at the nearest block
 - Priority of distribution of the goat units will be given based on first come first serve
 - Once the goats in the farms are ready to be sold, the beneficiaries will be informed by the PS communicated via the agri-entrepreneur
 - Based on the communication, the beneficiary will purchase one buck from the farms at the market price fixed by the agri-entrepreneur
 - The female goat will be provided by the entrepreneur at free of cost to the beneficiary and the same will be reimbursed by the SPMU, through the LGs at the cost of INR 5000/- per female goat. In case the cost of the goat is higher than the said amount, the difference will be paid by the beneficiary
 - Based on the number of female goat demanded by the HHs as a member of specific LGs, the LG will collate the demand and route the same to the BPM supported by the CRCs. The BPM will then collate such request across respective blocks and send to the SPMU. Based on that the SPMU would transfer the funds to the respective LGs.
 - Alternatively, post the beneficiary purchases the female goat by paying the cost, the LG can reimburse the HHs based on submission of vouchers
 - The purchase bill voucher (for the buck) will be then presented by the beneficiary to the veterinary hospital and the same will then be forwarded to the Deputy director livestock office at the district level
 - The director will sanction the vouchers and then the payment will be released to the bank account of the beneficiary.
 - The differential in the cost of the buck, if any will be borne by the beneficiary
- **Market Development:** The TSA will provide technical support in aiding the aggregation and providing the market linkages of the goat rearers and the breeders. The TSA will handhold the farmers for value chain development and provide market linkages support for marketability of produce and support in revenue generation. For instance, the TSA will extend support through establishing marketing linkage by partnering with downstream commercial processing and developing retail partners for such products so that assured market and premium prices will have to be ensured to such farmers. The details related to this has been covered in the value chain component of the PIP.
- **Training and capacity building:** Capacity Building and Institution Building specialist at the State Unit will be the key nodal person for training to the community institutions. All strategic decision-making will be done at this level. The TSA will make the schedule for conducting the training and capacity building of the farmers and the PS in the villages. The TSA will also provide training to the CC and the BPM who will become the master trainer for further training the goat farmers and the LRPs in the village. The training and capacity building activity would take place parallelly during the intervention roll-out planning as well as while the actual execution of the activity. This can be broadly classified under two heads.
 - **Training of district and block staff on goat rearing intervention**
 - This training cum-orientation program will take place at the time of activity planning and prioritization to prepare the district and block team leads and the

corresponding representatives by onboarding them with the interventions; its objective, approach, strategy, processes and roles and responsibilities of the key stakeholders.

- An orientation program will be organized for DPM, Managers off farm and BPM in the SPMU by the State Project Manager. Staff members from the state department of Animal Husbandry and Livestock will also be invited to deliver training to the DPM, BPMs and other leads for the execution of the intervention.
- **Training and demonstration for the Pashudhan Sakhi and the Agri-entrepreneur:** The overall training strategy would be to develop a master training calendar at district and block level based on the inputs from the CVDP conducted at the village level. The calendar would also identify the total number of beneficiaries across the block level. The schedule for the training of the PS and the agri-entrepreneur would be as follows:
 - All the PSs together would be trained at the district level across various modules designed based on the need and demand among the goat rearers and the Training Needs Assessment (TNA)
 - Based on the TNA, various modules will be developed by the TSA to train the PS so that they can subsequently train the beneficiary members across their respective villages via ToT model and deliver the services as taught through the knowledge and demonstration.
 - Each PS from the village level would also collectivise at the block level as well as at the district level, and the group of PS in each targeted block and district will be imparted training by the livelihoods thematic manager stationed at the district level.
 - Each of the PS across the intervention village would impart training and demonstration to its respective members based on the TNA via ToT model

The PSs and the agri-entrepreneur would be trained across the following modules

Prospective Modules	Duration
Module I: Goat rearing breeds and its characteristics, selection of breeds according to the agroclimatic zones of the region	Within 1 month
Module II: Housing, feeding (domestic production of concentrate mixture and feeding in the fodder parks) and overall health management of the goats	Within 1 month after the first schedule
Module III: Trainings have been imparted to build the capacity of semen collectors, lab attendants, and evaluators as well as building the capacity of the local field functionaries	Within 1 month after the second schedule
Module IV: Rearing of quality breed bucks & natural breeding processes	Within 15 months after 3 rd Module
Module V: Health and Vaccination camps (mass deworming), cattle disease management	Within 1 month after 4 th Module
Module VI: Forward linkages – aggregation of goat selling at haats, doorstep and to the institutional buyers	After three to four months

The roles and responsibilities of the PSs are as follows:

- Impart modular training and demonstration to the members of undertaking goat rearing under the project
- Collecting and maintaining a record of existing goat status such as number of goats, gender, age of goat, feeding status, vaccination status, income from goat, the utility of goat milk, usage of goat dung, consumption of goat meat and such other basic information
- The PS would conduct regular monitoring of the goats kept and maintained by the HHs by visiting each house and will document the information monthly. Monitoring on the following aspects would be undertaken:
 - Regular and timely deworming
 - Regular and timely vaccination

- Housing, feeding and water condition of the goats
- The PS would be responsible for providing timely information to the members regarding the date, time, venue of health and vaccination camps and will mobilize the members to take goats to the venue for availing treatment and vaccination.
- Mobilize and promote the HHs for Azolla and Moringa farming to be used as goat feed, domestic production of concentrate feed rich in nutrition, apart from distributing the concentrate mixture procured at the block level.
- Provision of vaccination, treatment and castration services at the doorstep of the HHs.
- The PS would produce cattle food in the form of channa, chaat, herbal supplements and could sell the same to the HHs on payment basis

Marketing services by the PSs

- Keep a track of the selling price of the goat across various local markets and pashu haats and communicating the same to the members
- Mobilizing interfered HHs to collectivize the goats and sell them in local haats or at pashu mela for demanding a higher price
- Identifying and developing sales with small prospective institutional buyers such as caterers, hostels and hotels
- Fix a selling price across all the breeds (price per kg body weight) at the village level so that all the village members should adhere to the price.

ii. Cost Summary of the Intervention under Goatery sub-sector

INTERVENTION	Beneficiary	INPUT COST (INR)	PURPOSE OF FUND
Establishment of Goat Farms	1800 Agri-entrepreneurs	27 Cr.	Provision of 100% loan to the agri-entrepreneur @ 1,50,000 for each farm through LG
Distribution of Female Goat	60,000 HHs	30 Cr.	Grant of 5,000 for the purchase of a female goat for the HHs through LG
Distribution of Male Goat	60,000 HHs	NA	Convergence with the department scheme of goat distribution through DBT to the beneficiary
Note: The Cost of hiring the TSA for small ruminants has been included under the value chain development section			

III. Pig Farming

The Piggery sub-sector in the project location has various technical and commercial issues due to which it was considered to be included in the intervention activities to address some of the pressing challenges. Some of the **key issues** in the piggery sub-sector specific to project location are as follows:

- Lack of scientific breeding and management practices; there exists large amount of inbreeding because of non-systematic breeding and selection
- Lack of skilled labour and inadequate knowledge regarding pig farming and management
- Poor availability of extension support and gaps in the supply chain of piggery in the project location
- Though Bastar has high concentration of pig population, there are challenges related to the availability of extension services and input support
- Inadequate access to superior and exotic breeds of the pig
- Poor market linkages and low value realization on the commercial sale of the pigs

- High mortality of pigs due to poor health management and inadequate feeding practices (low availability of concentrate feed)

With the aim of achieving the twin PDO of income enhancement and nutrition improvement, CHIRAAG aims to develop cluster-based pig farming practices across the targeted blocks. Following is the rationale for including this intervention in the project:

- Pig farming would enable nutrition enhancement among the tribal population as pig meat is considered most nutritious with high fat and low water content and has got better energy value than that of other meats. It is rich in vitamins like thiamin, Niacin and riboflavin.
- Pig farming will provide an alternative and low cost as well as sustainable source of enhancing income across the target farmers as the project stakeholders consider it as one of the low cost off farm practices:
 - The pig has got highest feed conversion efficiency i.e. they produce more live weight gain from a given weight of feed than any other class of meat producing animals except broilers.
 - The pig can utilize wide variety of feed stuffs viz. grains, forages, damaged feeds and garbage and convert them into valuable nutritious meat.
 - The farms can easily utilize local materials like bamboo, housing structures and these structures can be built to protect the pigs from the different weather conditions and the risk of contracting diseases.
- Pig farming supports the principle of Climate-smart livestock production and can thereby contribute in reducing the carbon footprint of livestock production by emphasizing small scale, backyard systems that rely more on locally grown alternative feed sources without chemical additives.
- Pigs manure is widely used as fertilizer for agriculture farms and fish ponds that aligns with the concept of IFS under CHIRAAG
- Pig farming will provide smart and quick returns to the farmers due to the prolific with shorter generation interval. A sow can be bred as early as 8-9 months of age and can farrow twice in a year. They produce 6-12 piglets in each farrowing and therefore the per unit investment is low.
 - Pig farming provides quick returns since the marketable weight of fatteners can be achieved with in a period of 6-8 months and therefore has been considered as one of the important interventions for income enhancement of the farmers
- Pigs are known for their higher quality meat yield, which in terms of dressing percentage ranges from 65 - 80 in comparison to other livestock species whose dressing yields may not exceed 65%.
 - There is good demand from domestic as well as national market for pig products such as pork, bacon, ham, sausages, lard etc. that can be leveraged once the pig farming reaches a mature stage in the state.
- Pigs store fat rapidly for which there is an increasing demand from poultry feed, soap, paints and other chemical industries and therefore has the prospects for its value chain development

Besides the rationale mentioned above the other key objectives and rationale for the intervention include the following:

- To upgrade the indigenous stock of pigs by introducing exotic germplasm.
- To promote best practices of feeding, health care and housing.
- To establish linkage with market for better price realization.
- To improve capacity building among the members to interact with the development agencies.
- Expanding pig rearing among rural tribal women with semi-intensive system.
- Scaling up production by minimizing preventable diseases, parasitic infestation etc.
- Promoting quality management of livestock.

Scale of Intervention: The intervention will be implemented through cluster approach. A total of 100 Pig Agri-entrepreneur will be engaged on a 5+1 model in the selected cluster for developing pig farms through a 50% subsidy support by CHIRAAG, while the remaining 50% will be the beneficiary contribution. The project envisions to develop small-scale pig farms for improving the quality of pig breeds in the area and thereby improve the supply of superior breeds for self-consumption as well as

for linkages with the local markets to improve the income of the target beneficiaries (both, the agri-entrepreneurs as well as the HHs).

Beneficiary Selection Criteria

- Primary Breed Rearers; the agri-entrepreneurs who are selected for setting up the pig farms
 - The entrepreneur is willing to invest 50% of the total cost for pig farming unit
 - The has some experience in conducting pig rearing
- Secondary Beneficiary; the HHs who would be willing to seek convergence benefit under the state's pig trio scheme and would be willing to pay the extra cost of purchase, over and above the cost subsidized under the convergence
 - The HHs should be willing to undertake pig rearing as one of the integrated activities
 - The HHs should have adequate floor space for conducting pig farming
 - Preference shall be given beneficiaries belonging to marginalized communities
 - Preference will be given to prospects having experience of livestock rearing

Subsector	No of Units	Unit Size
Pig Farming (primary beneficiary as agri-entrepreneurs pig breed rearers)	100 Agri-entrepreneurs	5+1
Pig farming (secondary beneficiary as HHs pig rearers) (through LG revolving fund)	10,000 HHs	2+1

i. Implementation Plan

Following will be the implementation plan:

- **Planning:** The first step across all the intervention is the preparation of the CVDP which will include the fundamental information the existing practices as well as various IFS models that can be potentially developed along with the customized plan for the HHs in the target areas
- **Mobilization of LG into hamlet based informal piggery sub-group:** Once the CVDP are prepared, the very next step will be the mobilization of the farmers to form the LG group that will be constituted by the multiple sub-commodity group; Piggery sub-group in this case. Every LG will have a lead PS who will be responsible for anchoring and routing all the key activities related to livestock and fisheries at the grass root level. Currently, pig farming is not a very predominant activity in the state and thus there might be the need to put in extra efforts for garnering the interest of the community members in the pig rearing by informing them about the key benefits of income and nutrition enhancement from undertaking the pig farming. The mobilization strategy will be similar to that explained in the goat farming intervention.
- **Onboarding of the TSA:** The TSA will be hired for managing the Piggery intervention and provide an overall technical and management support. Following will be the key scope of activities undertaken by the TSA under the Piggery farm development intervention
 - **Conducting a dipstick study:** Will undertake detailed assessment of existing pig clusters in the CHIRAAG blocks, review of the CVDPs prepared across the village and conduct a desk research.
 - Once the key pig clusters are identified across the CHIRAAG blocks, on need basis the TSA will conduct a quick survey
 - This will lead to a clear identification of clusters for pig farm development intervention under the project
 - **Preparation of SoPs and Operational Manual:** The TSA will prepare the detailed operational manual that will contain information on the following aspects:
 - Process flow for development of pig farms
 - Procurement of key inputs and the detailed process
 - The floor space for different categories of pigs to be procured
 - Characteristics for breed selection
 - Management of farm activities, best practices on housing
 - Feeding requirements and feed formula for the category of pigs procured

- Healthcare management of pigs
 - Convergence with the current pig trio distribution scheme,
 - Schedule for training and capacity building of the farmers and such other information
- **Selection of agri-entrepreneur:** The pig farming model will be managed and owned by the agri-entrepreneur and will be basis 50% subsidy from CHIRAAG. The general criteria for selection will be like the one as mentioned in case of goat farms.
- **Region-wise orientation of the agri-entrepreneurs:** Post a final list of the agri-entrepreneur is prepared the TSA will conduct a region-wise orientation of the agri-entrepreneurs to onboard them with the idea of developing the pig farming.
- **Preparation of the Pig Farming Business Plan:** The TSA will provide a template for the plan preparation and will also initiate the preparation of few plans as samples. The Community Coordinator will assist the TSA in the preparation for the rest of the plans
- **Fund disbursement from the SPMU based on submission and approval of the business plan to the SPMU:** Post the plan preparation in coordination with the TSA, all the agri-entrepreneur across the selected villages will submit the plans and the demand application for funds to the respective LGs. The PS and the CC will be the facilitator in the process.
 - The BPIU will do a preliminary assessment and validation of the plan and will forward the same to the DPIU.
 - The DPIU in close coordination and consultation with the livestock manager will review the plan and forward the same to the SPMU for the final review, validation and fund disbursement.
 - Based on the assessment of the plans done by the TSA, the SPMU will also assess the viability of the plans and the funds will be disbursed to the bank account of the LG group
 - The LG group will transfer the funds to the account of the agri-entrepreneur as and when the construction of the farm is being done
 - Since the pig farming will be undertaken on the 50% subsidy model, the fund release from the LG to the account of agri-entrepreneur can be subject to the deposit of some money in its bank account as a requirement for transfer of funds
- **Parent stock and materials procurement as per SoP** – The project proposes to develop 5+1 size of pig farm. Based on the operational manual prepared by the TSA, the procurement for all the inputs needed for the farm will be implemented.
 - The procurement of the parent stock will be done through a tie up with agricultural universities where there are existing pig farms and/or agencies outside the state;
 - The agri-entrepreneur will purchase the parent stock, accompanied by the livestock department officer, the TSA, LRPs and the veterinary doctor in that block/district
 - The choice of the pig breed to be purchased will be based on the characteristics specified by the TSA and the community mobilizers as the indicators of superior quality of pig. Following should be considered as the important criteria for selection of boars for breeding purposes:
 - For commercial pig farming upgraded / crossbred or exotic stock in good health should be selected.
 - They must be offspring of better producing gilts and sows.
 - They must belong to a litter with size and weight of not less than 8 and 72 kg respectively at weaning.
 - Boars satisfying above stipulations are subjected to preliminary selection at 5 months of age provided they have a body weight of at least 60 kg.
 - Final selection of boars should be undertaken at 7 months provided it has attained a body weight of at least 90 kg.
 - Breeding males and females should be selected from different litters and boars should be changed periodically – preferably once in two years – for avoiding inbreeding.

Distribution of Piglets (2+1)	10,000 HHs	NA	Convergence with the department scheme of Pig Trio distribution through DBT to the beneficiary (using LG revolving fund)
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Dairy support service development

Milk production and trade mainly operate as a cottage industry in the rural areas. A majority of those involved in this activity are women, for whom it provides employment and helps to supplement their family income. Traditionally, dairying and pasturing activities were done to meet the domestic requirement. Following has been the status of Milk Production in the CHIRAAG areas:

- The Bastar Plateau Region (under selected CHIRAAG blocks) accounts for 7.77% of the total milk production in the state
 - Selected blocks in Bastar region account for 90% of the total production across all the CHIRAAG blocks
- Bijapur, Sukma, and Bastar accounts for 52% of the total milk production among all the CHIRAAG blocks in the Bastar region
- Potential for establishing milk route in the Bastar Plateau exists among all the blocks across the selected zones, Bastar region has the highest per day milk production

To strengthen the dairy value chain in the project area, the project proposes to intervene in 3 broad areas

- a> Train 110 animal health workers from the community as AI workers
- b> Train existing 45 animal health workers and upgrade their skill sets

The detail engagement of each of these would be articulated by the project SPMU in deep consultation with TSA and the relevant department.

3.2.4.1. Institutional Structure

Nutrition Supportive Resilient Livestock is a critical element of CHIRAAG, it is anchored on a collaborative and concerted approach of multiple stakeholders to ensure successful implementation. The program envisions to strengthen entire ecosystem for fostering resilient production systems in the

state. Hence collaboration and effective convergence among multiple stakeholders is the key to achieving the objective. The institutional architecture entails 6 major stakeholders – Government, Technical Support Agencies, Private entrepreneurs, Community Based Institutions, Panchayati Raj Institutions and Gothan Committee. The architecture is developed in such a manner to facilitate effective collaboration and convergence among these stakeholders and their agencies.

CHIRAAG would promote development of respective sub-groups in the LG. At the village and panchayat level, these institutions would act as platform for program implementation, capacity development, and monitoring. BPIU and CHIRAAG institutional resources would facilitate the program design, management and implementation at the level of Block, District and State.

I. State-level

A State Project Manager will head the implementation of the NSRL subcomponent in co-ordination with all lower institutional levels and in collaboration with all the state & district department offices. The State Program Manager will be supported by Project Manager responsible for managing agriculture, value chain and marketing activities.

The SPMU would act as a guiding body for decision making on policy and program design at the state level. The unit would have officers deputed from the Department of Agriculture. Managers at the SPMU would also ensure convergence among all the stakeholders.

- Convergence committee would be responsible for the appraisal of project design and policy
- Project Director would approve the program policies, guidelines, and projects proposals with due consensus from the PS Agriculture
- For the NSRL component, Director Livestock would be responsible for enabling seamless convergence among multiple stakeholders
- SPM Integrated Farming System (IFS) would lead the entire livestock project team for ensuring effective implementation of the NSRL component. SPM IFS would be responsible for end-to-end planning, design, strategy, policy, implementation, and monitoring support
- Assistant Project Manager (APM) Livestock would work directly under the guidance of the SPM and would be responsible for managing the implementation and monitoring of the program at the state level
- APM would also be directly heading the Project Executive Livestock at the State level and District Project Manager, to ensure effective coordination and implementation
- Collectively, SPMU would facilitate in designing program strategy, implementation guideline, innovative pilots, technical inputs in program implementation. The major role would lie in developing a robust monitoring and evaluation system for the program. This would help in evidence-based program and policy design

II. District level

District unit would be established for effective coordination among the State Management Unit and the Block Implementation Unit. Further, the district unit would enable effective convergence among multiple stakeholders at the district level, for robust spearheading of the program.

- District Project Manager would head the Manager Off Farm and would be responsible for the implementation of the program at the district level
- The DPM would be responsible for decision making and strategizing for district-level implementation
- Further DPM would engage with the key stakeholders for effective convergence
- District Collector would provide guidance and administrative support for program implementation. He would also support in developing a platform through meetings and workshops for collaboration of all the stakeholders
- Manager Off Farm and Manager FPO and Value Chain Development would strategize project implementation in the district considering the unique geographical and agro-climatic

conditions. Further, it would be responsible for collating the demand applications, planning and funds requisitions

- The manager would be majorly responsible for maintaining effective communication with the state team; monitoring the program at the district level and resolve grievances and bottle-necks

III. Block-level

Block Project Manager is the critical link between the District Coordination Unit and the CRC. The idea is to depute resources at the block level which would enable on-ground monitoring, facilitate in effective implementation and robust troubleshooting and grievance redressal. There would be two sets of resources deployed at the block level CHIRAAG – Block Project Manager and MIS Support Staff, and field functionaries. The two resources would work in tandem and effectively to successfully implement the project.

- Block Project Manager would be the monitoring and evaluation officer on the ground for the project
- The Block Project Manager would also be responsible for the establishing convergence between Block Development Officer, and other government officers from key departments
- He would regularly share the status of livestock activities progress reporting against the program activities and targets with the DCU and SMU
- BPM would be the single command officer responsible for the end-to-end implementation of the project activities at the block level
- BPM would manage the field staff
- He would ensure effective planning, support field staff and spearhead - community mobilization, capacity building interventions, project implementation, progress reporting
- The BPM will ensure that all the LGs receive regular inputs and enable effective forward market linkages
- The FPO and the Value Chain Development Officer will ensure effective communication of policies and plans from Manager FPO and Value Chain Development at District level.

IV. Village Level

At village level project would have field functionaries of the respective departments. They would be responsible for spearheading project implementation at the Panchayat level. It would be leading implementation in 2-3 Panchayat. Collectively they would supervise and develop community resource persons for effective project management and sustainability.

- The implementation of the project in the defined cluster/ demarcated panchayats assigned
- enable community mobilization, the formation of LGs, capacity building and training of the LG members and other community institutions engaged in the farming activities
- The community cadres in case of Livestock and Fisheries – Pashudhan Sakhi would facilitate LG and sub-groups formation, conducting the meeting and capacity building
- One Pashudhan Sakhi would work with 40-50 farmers and register the farmers at Gothan Committee, and facilitate regular monitoring of the progress interventions at the grass-root level

Partnership with Various Organizations

To leverage the experiences of existing stakeholders working in Chhattisgarh, the project will partner with organizations such as ICAR Institutes, State Agriculture universities and their KVK'S, Technical Support Agencies for small ruminants, fodder development, Knowledge partnership with organisations such as International Potato Center (CIP), Peru, Agri-business Start-Ups, and other institutions.

Convergence

The NSRL sub-component has a vast scope of convergence with the Directorate of Animal Husbandry and Cooperative, Marketing Federation, Rural Development department apart from other line departments. The maximum no. of interventions covered in the project can successfully be converged

with the line departments; the table indicates the various interventions which can be converged correspondingly. The nomination of District Officers of the line department as Nodal Officers will eventually support the subcomponent.

Procurement

Procurement of various commodities in the subcomponent will be in accordance with the place of requirement, quantity and value. The procurement will be done through two means (1) community procurement (2) project procurement.

A. Community procurement: All those commodities required at the CRC which are directly related to the cultivation and handling of crops i.e. inputs etc. will be purchased through the CRC which will be through the community procurement plan.

i. Inputs: The procurement of inputs like parent stock, and other relevant materials required will be done by following community procedure.

ii. Goods and equipment: Goods and equipment required for village resource centre will be procured by the CRC following community procurement rules. Those commodities will be procured which are at the strength and fall under PG level. The Producer group working committee will decide on the items and no. to be procured.

B. Project procurement: All the commodities which come under inputs, goods, services and civil work will be through the project procurement plan.

i. Consultancy services: Project provisions for hiring of the service providers for various sector specific technical support, development of training modules, training partners, advisory bodies on critical stages of production cycle will be done by the State management structure.

ii. Civil works: All civil works will be accounted for by the CRC depending upon the activity within their boundary.

iii. MIS Services: Service provider may be engaged for the development of CHIRAAG MIS System for capturing of the entire implementation of the project.

iv. Goods and equipment: All commodities related to goods and equipment to be procured at the State level.

For all the livestock inputs that will be procured from the Beej Nigam (subject to clearance from the project assessments, following will be the overall process of procurement:

- Demand Collation: The District Off Farm Manager will collate the field demand received from the LGs via BPIU and the CCs
- The District Farm Manager will share the collated demand with the Deputy Director of Veterinary Services (DDVS) or Joint Director Veterinary Services (JDVS) through the DPMU
- The respective officials at the district will submit the copy of demand to the SMP IFS
- The DPMU will also share the demand request with the SPMU based on which SPM IFS will issue the Disbursement Advice (DA) to the DDA for the transfer of funds to the DDVS or JDVS
- The DDA will transfer the funds to the respective vet officer based on the demand
 - The fund transfer will be made by the DDA to the DDVS or JDVS and then the respective officials will make the payment to the DM Agro
 - DDA will have to collect all the payment vouchers made against the fund disbursement made to the respective district officials from the department. A copy of these vouchers will be shared with the SPM IFS as well as the SPM Procurement and Finance for the audit purpose
- The DDVS or JDVS will have to share a copy of the indent vouchers (sent to the DM Agro) with the SPMU IFS for the demand raised with respect CHIRAAG procurement. The SPM can therefore follow up with the HO from Beej Nigam to ensure timely supply
- The goods will be delivered to the respective Blocks at the BPIU offices and the CC and/or the Block level agri officers could send it to the LGs.

All the procurement under this component will be carried out by following World Bank directives. The

detailed table of the procurement for this sub-component is given in Annexure 1.

Funds Flow

Fiduciary Safeguards Management

There should be transparency in the fund flow mechanism at all the institution. Core banking facilities for fund transfer should be the means of transferring funds. The proper allocation and transfer of funds as per the generated demand and due diligence of the requirement should be properly monitored. At the CRC, and the LG level the activities should be clearly be monitored and all transactions should be detailed to the members. Timely reporting and MIS entry should be done to the block and the state level.

Activities monitored by the district should also have transparency in coordination with the state institutional level structures. Proper MIS entry and Monitoring and Evaluation of the project will help in the Fiduciary safeguards.

Governance risks and mitigation measures

The Governance of the whole project is based on the certain principles of transparency, accountability and participation of the end beneficiaries in all of the project activities. The project will address the governance issues by

- Participation of the community stake holders in the entire decision making
- The community and along with the office bearers and leaders will be responsible for the various activities of the project.
- System of Internal and external audits.
- The project will share the information publicly through the website or reports.

Sl. No	Risks	Descriptions	Risk Mitigation Measures
1	Technicality	The project requires complex technical skills at Pashudhan Sakhi and farmers.	Project has strong focus on capacity and training and implementation of key service delivery agents and HH. And project contracts TSA in for commercial Poultry, Goatery, piggery, Fodder, Milk and AI. The TSA will support not only the training and monitoring but also provide TA for first 4 years. Focus will be on skills training and development of model farmers.
2	Delivery agents	Pashudhan Sakhi and Agri-entrepreneur are key to service delivery and productivity enhancement	Training, monitoring and handholding support will be extended by the Project cadres as well as the TSAs for a potential income through a business model that generates sustainable income.
3	Financial	The risks associated with funds are time, scale and exchange.	The fund flow processes will be predefined. The procurement rules must be followed at community level and State Levels. The maximum transactions will be done cashless to insure accountability and transparency.
4	Quality Chicks, bucks and boars	Inadequate quality of bucks and boars in sufficient quality and quantity to supply to	Project will procure breeding stock from the animal fair such as Pashumela and such camp-based events. If breeding animals not available through the project, the project

Sl. No	Risks	Descriptions	Risk Mitigation Measures
		beneficiaries to build the necessary foundation for productivity enhancement	could also facilitate linkage to some commercial herds (however there are few commercial herds either inside out outside the state). The project will also train farmers on communities on the ability to identify and select better quality animals. While this will contribute to increasing productivity, the impact will be very limited. Also, besides training the project will ensure the procurement in the presence of paravet officers from the block level
5	Market Risk	The increase in production will decrease the prices.	The Project will ensure aggregation and marketing of products to have marketable volume to attract the traders. The secondary market will be explored and connected.

Post Project Sustainability

The project is sustainable because

- The entire value chain is controlled by the beneficiaries through self-governed LG and FPO which will be professionally managed based on margins generated.
- The project is investing in establishing the infrastructure for the supply of fertilized eggs that will provide a constant supply to the hatchery and brooder units for continued production
- A cadre of service providers (PS and Agri-entrepreneur) are recruited trained and equipped and will deliver services on a fee for services. Further, the PS and Agri-entrepreneur will be trained and equipped to aggregate demand for inputs such as vaccine and CLM aggregate this demand to access needed supply with a high volume, quality supplier.

The project is investing in developing the goat and pig farm infrastructure and agri-entrepreneurs who will be undertaking the breeding and rearing activity at a small but commercially viable scale to cater to the continued demand from the HHs as well as create local linkages in the nearby markets

4.2.5. Nutrition Supportive Climate Resilient Fisheries

4.2.5.1. Introduction

Chhattisgarh is the 6th largest fish seed producer and 6th largest fish producer of inland fisheries in the country. Its annual fish seed production has reached 265.98 crore fry and 4.45 lakh MT¹³⁴ fish. The fisheries development has been recognized as a powerful income and employment generator and plays an important role in rural economy and is a source of cheap and nutritious food. More than 2.10 lakh fishermen in the state depend on fisheries and aquaculture for their livelihood. Fisheries sector occupies an important place in socio economic development of the state. It caters primarily to the need of socio-economically weaker and backward communities of fishermen, Schedule caste and Schedule tribes. In addition to this fish is easily digestible and protein rich nutritive food commodity help to remove malnutrition.

Available Water Resources:

State has 88671 Rural Pond areas covering 1.083 Lakh Ha and 1770 Irrigation Reservoir covering 0.826 Lakh Ha Water area totalling to 1.82 Lakh Ha water area available for fisheries development at

¹³⁴Annual report department of fisheries

the end of 2019-20¹³⁵. Out of total area 1.909 lakh hectares of water area available for fish culture, 1.807 Lakh Ha water area is covered under fish culture, which represents 94.65% of the total available water areas for fisheries. The developed water area under fish culture is shown in table 1.1

Type of Water Area	Area in Lakh ha	% developed
Ponds	1.083	92.89%
Reservoirs	0.826	96.97%
Total	1.909	94.65%

Main rivers Mahanadi, Indravati and their tributaries flow 3573 Kms. in the state and offer themselves in fishery development activities. In year 2018-19 newly constructed 259.72 Ha water area through Blue revolution scheme.

The freshwater fish farming plays an important role in the development of rural livelihoods of Chhattisgarh. Apart from direct self-employment opportunities from fish farming, pond fish farming offers diverse livelihood opportunities for operators farming employees of hatcheries and seed nurseries, and for seed traders and other intermediaries. State fisheries is mostly dominated in culture-based fisheries in which most cultivable species are Indian Major Carps (IMC), Exotic carps and catfishes. At present more than 2.10 lakh fish farmers in the state depend on fisheries and aquaculture for their livelihood. A total of 1,315 fishermen co-operatives exist in the state¹³⁶. Information regarding utilized water area under fish culture, number of reservoirs on the basis of size with their area and a total number of fish farmers as obtained from DoF is presented in Table below.

Number of reservoirs on the basis of size and area¹³⁷ (for year 2019-20):

Water structure	Available area		Under Fisheries	
	No. of Ponds	Area (Ha)	No. of Ponds	Area (Ha)
Rural pond	88,671	1.083	78,275	1.006
Irrigation water structure	1,770	0.826	1,635	0.801
Total	90,441	1.909	79,910	1.807

CHIRAAG Regional Analysis:

- Fish production in the selected CHIRAAG Blocks accounts for a share of **0.58% of the total fish production in the state; 2710.98 MT**
- In terms of fish Productivity (fishes per ha of pond), **Narayanpur has the highest productivity (500 fishes per Ha of Pond)** (across all CHIRAAG blocks in all the three regions), followed by Sukma, Mungeli, Bijapur and Dantewada
- Out of the total production within CHIRAAG blocks in the selected districts (all zones),
 - the northern region accounts for 19% of the total production
 - Koriya accounts for the major chunk of production with 38% share, followed by Jashpur at 22%
 - Koriya has the highest productivity, followed by Surajpur and Balrampur
 - the central region accounts for the highest share in the total production – 45%
 - Within the central region, **Kanker accounts for 50% of the total fish production among the CHIRAAG districts**
 - Mungeli has the highest productivity within the central CHIRAAG districts; 333 fishes per Ha of pond

¹³⁵ Ibid

¹³⁶ <file:///C:/Users/jx941ar/Downloads/171845-261874-1-PB.pdf>

¹³⁷ <https://agriportal.cg.nic.in/fisheries/pdf/Prashaskiya%20Prativedan%202018-19.pdf>

- the southern region accounts for **36% of the total production**
 - Within the southern region, Baster (32%), Narayanpur (22%) and Bijapur (20%), together account for 74% of the total production, while the rest three districts in the south have an account for a single digit share

Further the selected CHIRAAG intervention areas have 211 fish cooperatives constituted by 5,014 farmers. Further there are 5,741 individual and 5,547 community ponds having area of 3,322.75 ha and 6,635.61 ha respectively. There are total 8 hatcheries in the selected CHIRAAG blocks and 73 seed rearing units. Further there are 8 demonstration units with 5 training centres for the farmers.

Rationale

Chhattisgarh is situated in the middle part of the country and there are enormous potential for fisheries development and the climate and meteorological condition is favorable for fisheries¹³⁸. The total area under fish culture developed in state is 1.54 lakh ha against the available 1.64 lakh ha¹³⁹. This indicates that there is a vast scope to expand the area under fish culture in the state. However, in spite of various schemes implemented through Fisheries Department and other organizations the resources are yet to be fully exploited. The productivity in community ponds in the state is 3055 kg/ha/year against the national average of 2200kg/ha/year and the average production of reservoir is 202 kg/ha/year against the national average of 48 kg/ha/year¹⁴⁰. The statistics clearly depicts that Chhattisgarh has huge potential for fisheries growth in the state. Facilitating growth of fisheries sector in the state would also support the nutritional requirements of the community. Thus, concerted efforts are required to enhance the fisheries production in the state through public private partnership models and empowering the farmers to take-up fisheries as a livelihood opportunity to diversify the farm income and at the same time improve nutritional intake through fish consumption.

Objective

To promote economic transformation of rural households by enhancing productivity and income generation and nutrition enhancement of the target population from fish production systems.

The objective of this sub-component is to incrementally increase the household incomes of participating farmers through enhanced fish production and marketing in target districts. It further envisions to increase the fisheries consumption among the target population through increasing the access to fisheries to improve the nutritional standards of the tribal communities – especially women, fisheries serve as rich source of micronutrients including iron, which support in reducing cases of anaemia. This is achieved through:

- Strengthening or building, robust, sustainable fishery producer groups (Livelihood Group)
- Increase the development of individual and community pond to promote fisheries
- Enhance fish production and productivity in the target area
- Promote Integrated farming system models for fish cultivation in the target area
- Introduction of improved fish culture techniques and access to credit, which will give incremental increases in their production over three crop cycles
- Organization and coordination with markets that will improve their capacity to market their production, to ultimately transition towards small or medium agri-enterprises
- Promote fish consumption for improving the nutritional standards of the tribal and women

Increasing fish production and productivity

Rationale

¹³⁸<file:///C:/Users/jx941ar/Downloads/Chattisgarhfisheriesdevelopment.pdf>

¹³⁹Ibid

¹⁴⁰Ibid

Presently the state demand of fish is 15.10 Kg. per capita and availability is 13.40 Kg. per capita while the gap in the demand is 1.70 per capita¹⁴¹. Current government schemes provide 600 tonnes of fish for fulfilling gap¹⁴². At the national level Chhattisgarh contributes almost 2% of country's fresh water fish production¹⁴³. The State has large potential for fisheries development. Five districts in CG most potential in fish culture and those are: Raipur, Mahasamund, Dhamtari, Durg, Bilaspur and Janjgir. Due to following reasons, this potential has remained untapped:

- lack of technical knowledge about fisheries and fish cultivation
- lack of training facility in the target area
- lack of human resources for providing extension support and spreading awareness
- lack of availability of quality seed and feed
- lack of advanced and technical fisheries practices

Fisheries Department of CG implements the different schemes for promotion of livelihoods of the fishers in the state. Concerted efforts are required to meet the demand of fish in the state and promote increased value realization through fisheries. CG needs to move up the value chain to a significant extent, which may happen only with more investment not only in processing, but in organized farming using modern scientific cultivation practices as well.

Objective

- Increase the area under fish cultivation
- Promote alternative livelihood opportunities for the poorest of the poor
- increase production and productivity for fish cultivation
- Develop and promote entrepreneurship through fish cultivation
- Income enhancement for poor households
- Promote high nutritious indigenous variety of fish

It is being proposed to support the existing government interventions in strategic fashion to meet the objective of income and nutrition enhancement through fisheries. The idea is to promote development of new ponds and renovate existing ponds facilitating increase in area under fish cultivation and enable higher production as well as productivity.

4.2.5.1.1. Activities to be Spearheaded

I. Individual Pond Construction

Fisheries is one of the critical activities from the perspective of income security and nutrition enhancement. The project is being implemented in the tribal geography having high potential for fisheries. The project location already has 5741 individual farm ponds in the 3,322.75 Ha of the land area. Further 5,014 fish farmers in the project location are being federated into 211 fisheries cooperative societies.

Government of Chhattisgarh has been implementing multiple Government schemes to promote fisheries development across the state. Under the Rashtriya Krishi Vikas Yojana, Government of Chhattisgarh has promoted construction on 1 Ha of individual pond for fish cultivation. Construction of the pond costs at around INR 8.5 lakh for which the government provides the subsidy for INR 5.1 Lakh, further under the Blue Revolution Scheme similar pond construction is promoted through the structures costing INR 7 Lakh, for which government subsidy is INR 2.8Lakh. Government interventions have significantly supported fisheries development in the state. However, there is still vast scope for scaling

¹⁴¹ DPR Fisheries department

¹⁴² Ibid

¹⁴³ Dr. Dipankar Saha, "Fisheries Sub Sector Study of Chhattisgarh State of India – a revised Technical Report," State Institute of Rural Development, Chhattisgarh, [file:///C:/Users/jx941ar/Downloads/CG_FisherySubsectoranalysis_DS%20\(1\).pdf](file:///C:/Users/jx941ar/Downloads/CG_FisherySubsectoranalysis_DS%20(1).pdf), referred on 26 Dec 2019

up the interventions. However, as the pond size constructed under these schemes is atune to 1 Ha, the scheme is suitable for large farmers.

The project envisions to **extend the scope of fisheries intervention to the small and marginal farmers**. Thus, the project proposes to **promote construction of small ponds of around 6*6.6 Sq Meters**, on the private land. The constructed pond should be at around 5 feet. The activity would enable small farmers adapt to fisheries culture. The project proposes to support the farmers in three-fold manner: provide subsidy support for the pond construction, and working capital support for - feed and seed, further provide training and capacity building for sustainable fish culture.

The intervention would support the project development objective of CHIRAAG in two-fold manner:

- **Nutrition Support:** the farmers cultivating fisheries would be also provided the benefit of **Behavioural Change and Communication** campaign to **promote the consumption of the fisheries**. this would support in enhancing the nutritional intake of the tribal families in the remote areas.
- **Income Enhancement:** The cultivating of fisheries would provide additional income support to the farmers.
The project would be implemented through the **Integrated Farming System Models**, which would engage the farmers in cultivating more than one cropping system. Hence fish cultivation on small area of land would provide complimentary support to the overall farm income.

i.Objective

- To provide employment by undertaking Fishery by construction of Tank on farmer's land
- Continuous growth in Fish Production
- Extension of basic facility by farmers

ii.Beneficiary selection criteria

- Willing to invest minimum area of 6*6.6 Sq Mt
- All categories of farmers who are willing to take up the activity
- Priority of small and marginal farmers, ST/SC and women farmers.
- Beneficiaries/long term lease holder should produce documentary evidence of availability of requisite land free from all encumbrances and financial resources along with necessary clearances/permissions etc.
- Farmers able to afford the pond construction
- Farmers having experience of fisheries activity would be preferred
- One pond would be constructed per farmer

iii.Phasing in plan:

The project would be initiated first in the Gathan villages to augment the intervention of the government for improving the livelihoods of the rural communities. Further the activity would be implemented in a **selective manner**, as the benefit of the project would be provided to the farmers willing to take up the activity. Further the idea is to promote the activity through the **Integrated Farming System Model**.

As the project initiation – in the first year would begin post monsoon, the activity would initiate in the second year of project inception, to synchronize with the suitable season for fish cultivation. Further the phasing in of the program is as follows:

Year	Period	No of Districts	No of Blocks	No of Individual Ponds Constructed	% of HH covered*
First	2021-22	-	-	-	-
Second	2022-23	2	4	2,250	15%
Third	2023-24	4	5	5,250	35%
Fourth	2024-25	2	6	5,000	33%
Fifth	2025-26	-	-	2,500	17%

Sixth	2026-27	-	-	-	-
Total		8	14	15,000	

II. Renovation of Existing ponds

Department of Fisheries has laid down concerted efforts for enhancing the fishery productivity in the state. Under the scheme of Blue Revolution – Renovation of Existing Ponds, the department provides a package of technical, financial and extension support to renovate community ponds. The intervention has led to improved fish productivity and improved the ecological balance through pond revival.

As the project is being implemented in the tribal dominated areas community natural resources play a critical role in livelihood and social development for the community. The project proposes to augment the intervention of the Government and **support in the development and renovation of the existing community ponds**. Currently there are around **5,547 community ponds of 6,635.51 Hectares** in the project locations. The assistance would be provided in the form of **funds for renovation of existing ponds and inputs as - fish seed, feed fertilizers, manures, medicine etc. for the first year**. The project envisions for providing technical and financial assistance to the **community pond owners for sustainable maintenance of the ponds**. The intervention would enable improved fish production and enhanced ecological balance. Further the intervention would lead to increased income enhancement through providing additional livelihood support.

Further along with focusing on the productivity the project envisions to improve the consumption levels as well. Fish production activity is taken-up only for the purpose of income generation. **Specialized BCC interventions would be rolled out in the project location to motivate the community for consumption of nutri-fish** and local varieties. **Improving the production and consumption practices** would lead to the achievement of dual objectives increasing farm income and enhancing nutrition.

Further the farmers engaged in the fish production would be motivated to work toward **Integrated Farming System**, through consolidating their resources for optimum utilization and earning higher revenue.

i.Objective

- Restore ecological balance through desilting of the old community ponds
- Improve the social dynamics of the region through engaging in the community fish production
- Enabling income enhancement through livelihood diversification, as the activity would provide the farming community an alternate source of livelihood
- Enhancing the nutrition intake of the community through focused intervention of behavioural change leading to increased fish consumption

ii.Beneficiary selection criteria:

For individual Pond Construction:

- All categories of farmers who have allotted rural tank on lease for fish culture in village/private land holder
- Preference would be given to the groups having higher participation from
 - ST community
 - Women
 - Small and marginal farmers
- Farmers willing to work in a collective mode to implement the activity

For Renovation of the Existing Ponds:

- Community group managing the pond
- Fisheries cooperative/community group willing to work collectively toward the activity of fish cultivation
- Fisheries cooperative/community group willing to collectively invest 50% of the cost of pond renovation
- Groups having higher percentage of SCT/ST population, women, small and marginal farmers would be prioritized

iii. Phasing in Plan

Year	Period	No of Districts	No of Blocks	No of Ponds Renovated	% of HH covered*
First	2020-21	-	-	-	-
Second	2021-22	2	4	50	20%
Third	2022-23	4	6	100	40%
Fourth	2023-24	2	4	100	40%
Fifth	2024-25	-	-	-	-
Sixth	2025-26	-	-	-	-
Total	-	8	14	250	-

iv. Implementation Plan for Individual Pond Construction and Renovation of Existing Ponds:

a) Regional Diagnostic:

The regional diagnostic conducted by the KVK with the support of IGKV would identify the potential areas of fishery cultivation in the CHIRAAG intervention blocks. The diagnostic would also assess the areas for new pond development. The KVK study the GIS/topographic maps to assess the potential of sustainable pond development, it would also assess the catchment areas of the nearby watershed bodies to ensure sustainable development of the ponds.

Further it would identify the existing community ponds in the project locations, and low-cost measures for the renovation of the existing community ponds in each agro-ecological zone.

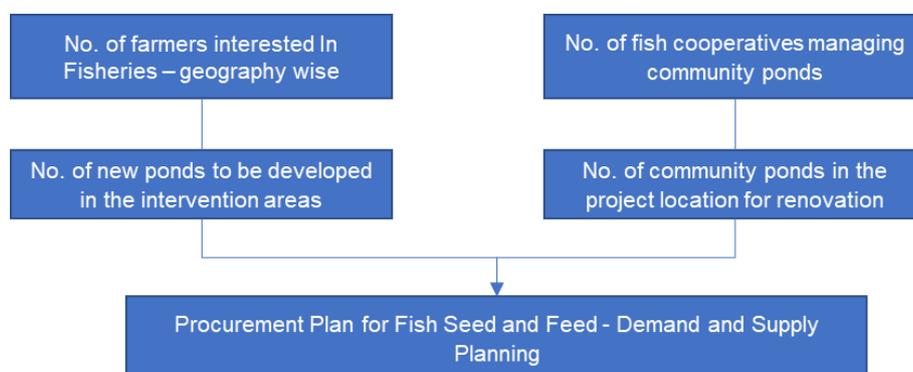
KVK would also support in identification of economically and demographically sustainable fish species for cultivation. Special focus would be given to identify fish breed which are indigenous and have high nutritive value. Usually the farmers in CG practice cultivation of Rohu, Katla, Mrigal; further KVK would support in identification of the breed suitable for each agro-climatic zones.

b) Planning:

Based on the results of regional diagnostic, farmers would be motivated to adapt fisheries cultivation during the CVDP. Community Coordinators would mobilize the farmers and discuss about individual pond construction and the value of fishery cultivation.

Further the community engaged in the fisheries cultivation through community pond would be mobilized to assess the status of the fish cultivation and pond structure. CC, Community Resource Persons and TSA members would facilitate the discussion among the community to assess the need for pond renovation and management.

Based on the farmers interest following plans would be developed at the village, block, district and state level:

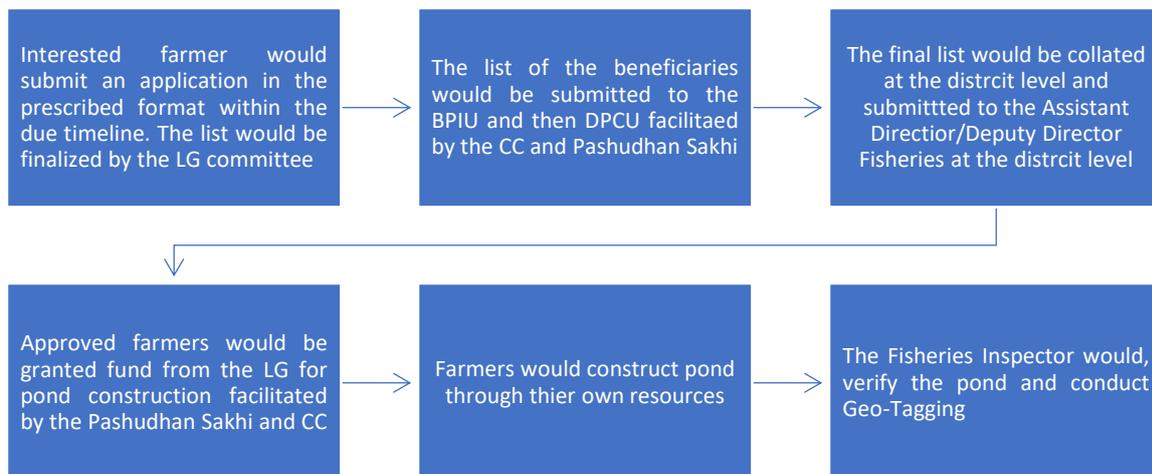


- CC would mobilize and motivate the community for individual pond construction and renovation of the existing community ponds
- Village level demand – for individual pond construction and community ponds renovation would be collated at the Block level by the BPM

c) Process Flow

c.1) Individual Pond Construction Process

- The APM and PE fisheries would develop the policy note for individual pond construction for fisheries activity
- Manager Off-Farm would collate and prepare a procurement and distribution plan for fish feed and fish seed for the district
- DPM and Manager Off-farm fisheries would be responsible for coordinating with the Deputy/ Additional Director Fisheries to raise the indent with the District Manager Agro - Seed Corporation for the procurement of the fish feed
- The Manager Off-Farm would also submit the list of the beneficiaries and seed demand to the PE and SPM IFS for ensuring seamless coordination for the procurement of the fish feed
- Similarly, the demand would be collated for fish seed, DPM and the Manager Off-Farm would coordinate with the Deputy/Assistant Director Fisheries to raise the demand of fish seed to the government nurseries
- The DPM would ensure procurement of the fish seed in a collective manner and supply at each block unit, from where the community would procure the same and supply to the individual farmers in the village

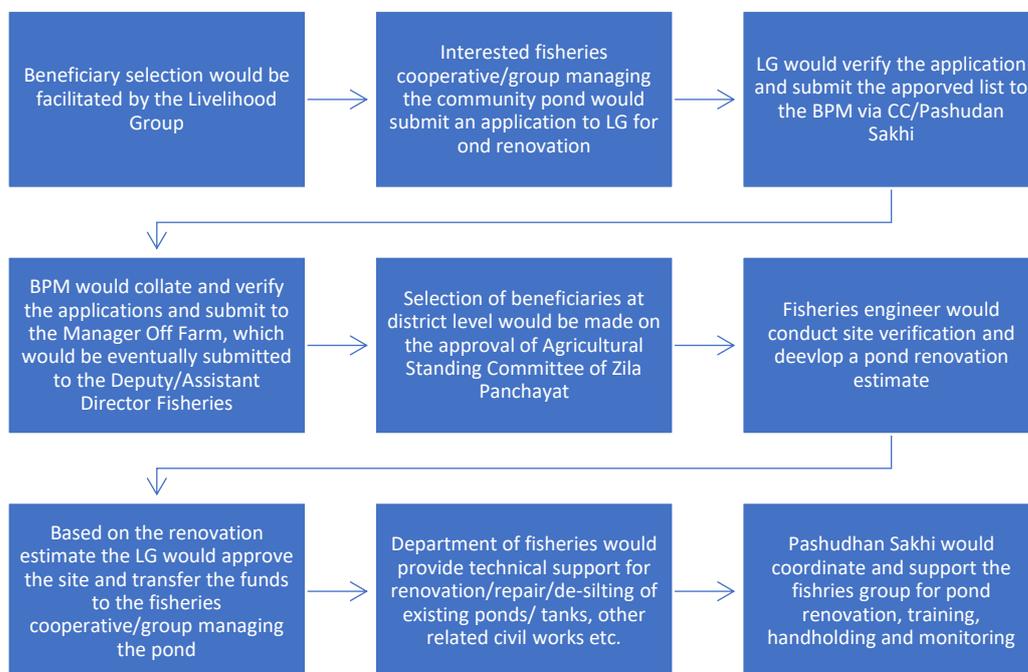


Along with mainstream activities, the project would nudge the farmers to progress towards Integrated Farming System Models. Thus, the project would promote cultivation of fish on the pond. These farmers would be provided with Fish seed through the project.

c.2) Renovation of Existing Pond Process:

- The APM and PE fisheries would develop the policy note for renovation of existing pond through CHIRAAG project
- SPM IFS, and APM Fisheries would enable convergence with the fisheries department for soliciting necessary support for the reannotation of the existing ponds

- Manager Off-Farm would collate the list of beneficiaries – fisheries cooperatives, groups which would receive the benefit of renovation of existing ponds. Based on the list a procurement and distribution plan for fish feed and fish seed would be developed
- DPM and Manager Off-farm fisheries would be responsible for coordinating with the Deputy/ Additional Director Fisheries to raise the indent with the District Manager Agro - Seed Corporation for the procurement of the fish feed
- The Manager Off-Farm would also submit the list of the beneficiaries and demand for seed to the PE, and APM Fisheries. They would coordinate with the fisheries department at the state level for the procurement of the fish feed
- DPM and the Manager Off-Farm would also coordinate with the Deputy/Assistant Director Fisheries to raise the demand of fish seed to the government nurseries
- The DPM would ensure procurement of the fish seed in a collective manner and supply at each block unit, from where the community (LG group) would procure the same and supply to the individual farmers in the village
- The fund of pond construction and inputs for a year would be transferred to the LG who in turn would both dig the pond as well as procure the inputs either from the government agencies or from the open market following World Bank procurement norm
-



d) Training and Capacity Building:

The project proposes to forge partnership with the IGKV for providing technical support to the farmers, fisheries cooperatives/groups for effective fish cultivation. IGKV and KVK would provide support in the following manner:

- identification of economically beneficial, but demographically sustainable fish variety, high in nutritional levels – preferably indigenous – for the cultivation, based on agro-ecological condition
- train the individual farmers, fisheries cooperatives/groups on scientific fishery management practices for enhancing the productivity
- conduct fishery demonstrations (the process of demonstration would be detailed out in the Community Operational Manual as well as the Fishery SOP) in the field areas supporting the existing farmers to adapt advanced management techniques and motivate new farmers to take up the activity

e) Monitoring and Handholding:

- For robust monitoring APM Fisheries along with PE Fisheries would develop the monitoring indicators
- SPM IFS and APM Fisheries would ensure regular and robust monitoring of the implementation of the project activity through monthly follow ups and field visits
- The process monitoring would also be conducted for assessing the progress of the activity for mid-term correction in the implementation plan
- **Pashudhan Sakhis** would be developed to ensure the uptake of advance scientific technology and provide handholding support to the farmers at the village level. they would also support facilitate the community in effective management of the fish pond
- Pashudhan Sakhi would provide training, handholding support and regular guidance to the fish farmers. Further s/he would be responsible for tracking the regular progress of the fisheries activity based on the set indicators and report to the respective CC
- The community coordinators would be responsible for collecting indicator-based progress data from the field and report to the BPM
- MIS based monitoring and tracking system would be followed – leveraging tablet and technology-based MIS applications

v. Project Support

v.1) Project Support - Individual Pond Construction

a) Small Pond Construction Triggering Fund:

As discussed in the previous section the project proposes to support the farmers with the subsidy for pond construction. Farmer would provide the labour and project would support the farmer with the additional funds required for the construction of the pond on the private land. These funds would incentivize the farmers for cultivation of fish culture.

b) Working Capital Fund:

Ensuring sustainability of the project, the project proposes to support the farmers with working capital to procure inputs for the first year. The support would be in the form of kind – the LG groups would provide Fish Seed and Fish Feed to the farmers for motivating and handholding them for sustainable fish cultivation. The idea is that with one year support the farmers would learn the profitable manner of fish cultivation on small pond and earn additional income.

c) Training and Capacity Building;

Capacitating the farmers with advanced and sustainable farming practices is the core of the project objective. Aware and knowledgeable farmers developed through the project would be the asset for the state in long run and enable project sustainability. IGKV and KVK have been forerunner in the state for building the capacities of the farmers. The project would enable partnership with these agencies to develop the customized technical module and impart training to the farmers on ToT basis.

d) Cost Table – Individual Pond Construction

S.NO.	INTERVENTION	Beneficiary	INPUT COST INR	PURPOSE OF FUND
1	Construction of Individual Ponds	LG members	3,000/- per pond	Establish individual ponds to promote fisheries
2	Working Capital	LG members	2,500/- per pond	1 kg of fish seed – around 250 in number
				*Also include the fish seed for farmers practicing fish cultivation on paddy low land

3	Training and Capacity Building	LG members	Lump Sum	Capacitating the farmers for sustainable harvest of fisheries
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v.2) Project Support – Renovation of Existing Ponds

a) Renovation of the Community Pond: This would be a community-based activity, and to ensure community ownership, the project would provide 50% financial support for the pond construction and the community would contribute the rest 50% for the pond construction. The funds would be provided for renovation/repair/de-silting of existing ponds/ tanks, other related civil works etc.

b) Input Support:

Further to ensure the sustainability of the fish cultivation, the project would provide the support for working capital. Fish feed and seed would be provided to the community for the 1st year of fish cultivation in the renovated ponds, limited to INR 14,000/- per pond

c) Training and Capacity Building;

Though the activity would be implemented with the existing fish cooperative. The project would provide further support to ensure sustainable and productive harvest of the fisheries. The project would enable partnership with the IGKV and KVK to develop suitable training modules for community fish cultivation and impart training to the community. CC and Padhudhan Sakhi would provide handholding support to enable the community effectively manage the resources in a collective manner.

d) Cost Table – Renovation of the Existing Ponds

S.NO.	INTERVENTION	Beneficiary	INPUT COST INR	PURPOSE OF FUND
1	Renovation of Community Ponds	LG/CRC members	50,000/- per pond	Renovate community pond for sustainable harvesting of fisheries
2	Input Fish Seed	LG/CRC members	14,000/- for fish seed and fish feed per Ha	Enable sustainable cultivation of fisheries (the grant is INR 4,000 for fish feed and INR 10,000 for fish seed)
3	Training and Capacity Building	LG members	Lump Sum	Capacitating the farmers for sustainable harvest of fisheries

Indicative timeline for the scheme implementation – Individual Pond Construction and Renovation of Pond:

S.N.	Activity	Proposed time
1	Selection of beneficiaries	January – February Y2
2	Construction/ Renovation of pond	March – May Y2
3	Water filling	June – July Y2
4	Stocking	July – August Y2
5	Feeding/ Disease management etc	August Y1 – May Y2
6	Harvesting	April – May Y3

III. Fish Feed Production Set up

There are around 5,547 community ponds and 5,741 individual ponds in the CHIRAAG location, further the project proposes to develop 15,000 new individual fishery cultivation ponds. These ponds are critical livelihood provider to the poor rural farmers. For the improvement of fisheries to achieve maximum yield from resources of fresh water, it is necessary to provide artificial feed by which fish grow rapidly and attain maximum weight in shortest possible time. Ensuring availability of the critical inputs is the key for sustainable harvest of the fisheries in the project location and success of the project fisheries interventions. Currently the Fisheries Department of the Government of Chhattisgarh procures fish feed from the private vendors. Seed Corporation is the agency responsible for enabling rate contract with these private agencies, and currently 100% of the fish feed is being procured from the private sources. To strengthen rural population and ensure self-reliance the project proposes to promote establishment of fish feed production unit set-up. The idea is to empower the community institutions – SHGs/ FPO sub-group to take up the fish feed production activity. The project would provide the input capital, training and handholding for enabling profitable and sustainable production of the fish feed. This would make the fish feed available at the local village level.

The initiative would strengthen the rural economy along with ensuring improved and sustainable harvest of the fishery.

Objective:

- To provide artificial feed by which fish grow rapidly and attain maximum weight in shortest time
- To provide cheaper ingredient of plant origin in fish feed for farmers
- To provide low cost balance diet using locally available feed for commercial fish culture
- To boost rural economy by promoting rural entrepreneurship
- To enable a self-reliant community for fish production

Beneficiary Selection

- Fishery entrepreneur – any farmer/member of household/community engaged in fish cultivation or FPO with members involved in fishery activity
- Individual having basic knowledge of fishery
- Community individual willing to work through a collective for fish feed production
- Priority would be given to individuals belonging to ST/SC/women headed households
- Basic screening of the beneficiary would be conducted by the LG, based on the criteria established by the APM Value Chain & Marketing, and VCDC
- These criteria would include:
 - at least 10th pass candidate
 - should have basic understanding of running local business
 - should have basic understanding of the calculations

Implementation Plan

Business Case Assessment:

The value chain development cell would conduct business case assessment of the key commodities. This would be based on the primary assessment of the potential commodities for which the forward-market linkage could to be developed.

An assessment of potential geographies having high demand of fish feed would be assessed. This would entail assessment of the community as well as market demand. The demand assessment would also entail identification of the potential geographical areas for the set-up of the unit. Further the economics of the set-up would be calculated. The production set-up would be established only if there is a profitable business opportunity based on the community demand.

The assessment would lead to:

- Identification of the geographies having high demand for fish feed
- Potential Business case for setting up Fish -Feed unit

Community Mobilization:

Fish feed production set-up is an activity that would be implemented in a community-based business model. This means that a group of individuals willing to take up the activity would form a sub-group within the FPO to receive the grant and the business support, to establish and manage the fish feed in a profitable manner.

Thus, based on the potential business case developed during the VCA the community would be mobilized. The potential for development of the Fish Feed Production Unit set-up would be discussed with the LG groups of the specified geographies defined in the BCA report. The case would also be discussed within the FPO. Interested farmer group would be mobilized into the FPO group for taking up the feed production unit set-up activity.

Develop Business Case

The community mobilizer and Value Chain Development Officer at the block level would facilitate the group to develop the business case. These business case would reflect the economics of the unit, profitability estimates and capital requirement. For setting up of the fish feed production set-up it would be necessary for the group to develop an economically viable business case.

Based on the viable business case, the interested farmer group – mobilized under the FPO would receive the grant from the FPO for setting up of the production unit

Distribution and Marketing

The Value Chain and Marketing Officer at the block level in close coordination with the manager Off-Farm &VCM would support the Fish Feed Production Group for sale and market linkage for the fish feed. The idea is to ensure the availability of the fish feed at the local level. Hence LG group having members engaged in the Fish cultivation could be engaged for forward market linkage.

FPO would decide the price of the fish feed to be sold in market or LG groups.

LG groups willing to purchase the Fish Feed, would collect the demand at the village level, and with the support of CC place the order to the FPO. Further VCD&M Officer would support in managing the demand of the fish feed, and enabling seamless and timely supply of the fish feed based on the demand

Training and Handholding Support

For ensuring the profitability of the intervention it is critical to provide the community with the training and handholding support. The VCDC would enable convergence with the Fisheries TSA, for developing training modules for the community to profitably manage the production unit set-up. Value Chain Development & Marketing Officer at the Block level would be responsible for imparting the training to the community members with the support of community coordinator.

Further the Value Chain Development and Marketing Officer would facilitate the FPO in establishing local market linkages for the sale of the fish feed

Implementation Flow:

- VCDC would conduct a business case assessment with the support of Manager Off-Farm & VCM, BPM, and VCD&M Officer
- Based on the BCA, the potential areas would be identified for setting up of Fish Feed Production Unit
- VCD&M officer along with the CC would mobilize the LG and share the potential business case
- Interested individuals would apply at the LG for setting up of the Fish Feed Unit
- LG would conduct basic screening of the applicants based on the selection criteria
- Final list of the applicants would be sent to the BPM
- BPM and Manager Off-Farm & VCM would conduct field study to validate the plans
- CC would develop the business case for the verified applicants, with the support of BPM and Off-Farm VCM manager
- Validated plans would be approved by the DPM and submitted to the VCDC
- VCDC would assess the applicant criteria and the business plans developed and recommend to the SPM Value Chain and Marketing
- Interested individuals would have to form a Fish Feed Production sub-group within the FPO, mobilized by the CC and Farm Resource Person
- Further, based on the approval, FPO would sign the MoU with the Fish Feed Production Entrepreneur group for developing the business model. In case the FPO decides make it operational under its own umbrella, then such MoU is not required.
- Based on the MoU funds would be transferred from the Directorate of Agriculture, to FPO's accounts and finally to the Fish Feed Production Entrepreneur Group for establishment of the Fish Feed Production Unit
- The FFP group would conduct procurement of the items

- FFP would be trained by the Fisheries TSA in close coordination with the VCDC for business processes, governance and effective management of Fish Feed Production Unit
- Value Chain Development Manager and BPM in close coordination with the CC would conduct close monitoring of the FFP unit and its operations
- VCD&M Officer and the Off-Farm & VCM manager would facilitate the groups in market linkage of the fish feed

Cost Table:

S.NO.	INTERVENTION	Beneficiary	INPUT COST INR	PURPOSE OF FUND
1	Fish Feed Production Set-up	FPO members	5,00,000/- per set up	Ensure sustainable availability of fish feed
<ul style="list-style-type: none"> • Funds mobilized from FPO Financing 				

The key point to be noted is that the funds for the establishment of the fish feed production set-up would be mobilized from the FPO Financing

IV. Promoting Agri-Mechanization – Community Custom Hiring Centre

Diversified agriculture and horticulture crops are grown in varied Agro-climatic regions of the State. The challenge is to get higher yields, in spite of vagaries of nature besides other problems such as a decrease in the availability of agriculture labourers, migration of farmers from the rural area to urban areas and timely operations in adverse climatic situations like heavy rains etc. The mechanisation of farm activities is the need of the hour to increase production and productivity. Though subsidy is being provided for farm machinery, due to prohibitive cost of farm machinery all farmers may not come forward to own them. There is also a deficiency of people who can provide service to these machines. Hence, Government of Chhattisgarh has laid down efforts under Sub-Mission on Agriculture Mechanization to establish Custom Hiring Centres.

Following is the status of Custom Hiring Centres in the CHIRAAG blocks:

Sr. No.	District	Block	No. of Krishi Yantra Seva Kendra
1	Bastar	Bastar	3
		Bakawand	6
2	Bijapur	Bhairamgarh	3
		Bhopalpatnam	1
3	Dantewada	Katekalyan	-
		Dantewada	-
4	Kanker	Charama	2
		Narharpur	3
5	Kondagaon	Baderajpur	-
		Makadi	3
6	Narayanpur	Narayanpur	1
7	Sukma	Chhindgarh	2
		Sukma	1
14	Mungeli	Mungeli	25
	Total		52

CHC is a boon for farmers especially for the small and marginal farmers¹⁴⁴. As per the RVKY Monitoring and Evaluation report of the Department of Agriculture¹⁴⁵, it can be observed that there is high demand for rental machinery in the rural areas, even Marginal and Small farmers hire machines on rent to increase productivity and reduce labour effort and cost. Further in some of the crops, the labour cost is as high as 60% of the total production cost. Further, in the intervention areas, the labour cost is very high as most of the labour force is deployed at the mining factories at higher cost which also increases the labour cost in the area and eventually increases the agricultural production cost. In addition to this, farmers have reported loss of crop in absence of labour and untimely harvest and threshing¹⁴⁶.

As small and marginal farmers are already aware and hiring machines in the rural areas, the project envisions to organize the sector for **enhancing the benefits for the marginal and small farmers**. Currently, the latest farm machinery, plant protection equipment and post-harvest equipment on custom hiring is being practised in an unorganized way. This should reach the small and marginal farmers through organized custom hire service centres to be established at CRC level.

Around 43% percent of the agricultural work force in developing countries consists of women agriculturists. They are engaged in certain specific operations like transplanting, weeding, sowing and storage. These activities entail longer hours of work and require postures that adversely affect women's reproductive health. With the objective of supporting women farmers, it is being proposed to provision for **small machinery in custom hiring centre to reduce women drudgery**. Through these Custom Hire Service Centres, the small and marginal farmers would utilize farm machinery efficiently and economically to enhance the productivity of crops grown. The project plans to **create equipment banks at various levels** for helping the cultivators to hire tools and equipment needed for agriculture at affordable price.

The objective of Custom Hiring Centre:

- To address the constraints in land preparation activities by providing efficient land preparation
- To reduce labour in Sowing/Transplanting, winnowing leading to a consequent **reduction in women drudgery**
- To ensure effective harvesting with reduced harvest window leads to **minimization of harvesting losses**
- To **enhance the production and productivity** of the crops
- To provide services of basic farm machinery services to small and marginal farmers in an **affordable manner**
- To build the skills of labour who use the farm machinery and provide the services to the farmers
- To run the centres throughout the year effectively, efficiently and profitably

The project is looking at convergence with the government for setting up of the CHC's within the CRC. The project will map the target locations and requirement depending upon the needs and establish these equipment banks at all possible locations. A Custom Hiring Centre (CHC) will be established at each Panchayat level it would be managed by the nodal LG/CRC. The CHC will have certain defined equipment which will focus on the reduction of time, labour hours and cost.

- The ownership and management will be with the collective responsibility of the CRC/LG
- CRC/LG may hire a staff for maintenance and all record keeping
- The CHC will run in a revenue model and all transaction will be recorded and monitored by the CRC/LG working committee
- CHC equipment would enable farmers save farm labour and promote farm efficiency. Especially the machines facilitating post-harvest management would enable the farmers in minimizing the post-harvest loss, support in timely harvest of the crop and promote climate resilient farming

¹⁴⁴ "DETAILED PROJECT REPORT FOR ESTABLISHMENT OF KRISHI YANTRA DHARE (FARM MACHINERY CUSTOM HIRE SERVICE) CENTRES/ CHSCs UNDER RKVY PROGRAMME FOR THE YEAR 2018-19",

¹⁴⁵ "Monitoring and Evaluation of Rashtriya Krishi Vikas Yojana Report," Department of Agriculture, Cooperative and Farmer's Welfare, Government of Chhattisgarh, 2019

¹⁴⁶ EY report

List of Farm Machinery that could be shelved in the Custom Hire Centres are present in the annexure.

Implementation Process and CRC management protocol:

- APM, and PE Agri would draft the program guideline for availing the custom hiring centres
- APM Agri, with support of VCDC would develop the SOP for implementation of the CHC through CRC
- APM and PE agriculture would conduct a rapid diagnostic study of the existing CHC
- At the time of CVDP BPM and CC would map the status of existing CHCs in the project location
- The need for establishment of new CHC would be identified based on the assessment and the livelihood plan developed during the CVDP
- CC would support CRC to develop proposal for establishment of the CHC
- The proposal would be appraised in the CRC/LG committee and submitted to the Block Project Manager, which would further be collated by the Project Manager Farm and submitted to the APM Agri, and SPM IFS
- State would transfer the funds to the concerned Gothan/LG Committee for establishment of CHC at the CRC
- The procurement of the equipment would be done by the CRC/LG's procurement committee
- Further the management of CHC would also be done by the CRC/LG
- CRC/LG would depute a staff for the management of the CHC and managing the books
- CC would support CRC/LG in identification of the CHC staff and provide handholding support for CHC's effective management
- CHC would lend machines to the nearby farmers – preference would be given to the farmers who are part of LG, for which CHC would charge fees as decided by the executive committee
- Community coordinator would facilitate CRC/LG to manage CHC in a profitable manner

Phasing in Strategy:

Year	Period	No of Districts	No of Blocks	No of CHC	% of HH covered*
First	2021-22	2	4	5	2.5%
Second	2022-23	6	10	60	30%
Third	2023-24	8	8	100	50%
Fourth	2024-25		3	30	15%
Fifth	2025-26			5	2.5%
Sixth	2026-27				
Total		8	14	200	

Cost Table:

S.NO.	INTERVENTION	Beneficiary	INPUT COST INR	PURPOSE OF FUND
1	Construction of CHC	CRC and LG members	10,00,000/- per CHC	Establish CHC at CRC/LG level. Enhance the usage of farm machinery to improve production, productivity and reduce women drudgery

V. Promoting Community infrastructure and Common Service Centers:

The gauthans¹⁴⁷ at the GP level, will play a central role to improve livestock management practices in line with one health aspects. To drive resource-efficient production activities and enhance cropping intensity,¹⁴⁸ the evolution of gauthan as a common service center for GP households will be piloted in project blocks. Investment through grants and technical support in building essential community infrastructure at gauthans will be in line with VDPs.¹⁴⁹ Gauthan Committee capacity, currently focused primarily on livestock-related activities, will be strengthened on the related technical assistance of their choice.

The SPMU would develop a long list of assets/ machinery/ infrastructure and the GC and CRC in consultation with LG members would develop a plan from this long list. The infrastructure would be procured by the SPMU. The GC/CRC would be facilitated to develop a plan for ownership, operation, maintenance, and cost recovery. Detail of this would be charted out in SOP and COM

4.2.5.1.3. Institutional Structure

Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems is a critical element of CHIRAAG, it is anchored on a collaborative and concerted approach of multiple stakeholders to ensure successful implementation. The program envisions to strengthen entire ecosystem for fostering resilient production systems in the state. Hence collaboration and effective convergence among multiple stakeholders is the key to achieving the objective. The institutional architecture entails 6 major stakeholders – Government, Non-Governmental Organizations, Private entrepreneurs, Community Based Institutions, Panchayati Raj Institutions and Gauthan Committee. The architecture is developed in such a manner to facilitate effective collaboration and convergence among these stakeholders and their agencies.

CHIRAAG would promote development of Livelihood Groups. The idea is to mobilize farmers institutions under the single umbrella of CHIRAAG committee. At the village level, these institutions would act as platform for program implementation, capacity development, and monitoring. BPIU and CHIRAAG institutional resources would facilitate the program design, management and implementation at the level of Block, District and State.

I. State-level

A State Project Manager IFS will head the implementation the subcomponent in co-ordination with all lower institutional levels and in collaboration with all the state & district department offices. The State Program Manager will be supported by Assistant Project Manager responsible for managing agriculture, value chain and marketing activities, Horticulture, Fisheries, Livestock

The SPMU would act as a guiding body for decision making on policy and program design at the state level. The unit would have officers deputed from the Department of Agriculture. Managers at the SPMU would also ensure convergence among all the stakeholders.

- Convergence committee would be responsible for the appraisal of project design and policy
- Project Director would approve the program policies, guidelines, and projects proposals with due consensus from the PS Agriculture
- Director Agriculture would be responsible for enabling seamless convergence among multiple stakeholders
- APMs would be responsible for end-to-end planning, design, strategy, policy, implementation, and monitoring support

¹⁴⁷ Gauthans are part of the NGGB policy of GoCG and are meant to be cattle daycare centers. Under CHIRAAG, these gauthans will be developed into community service centers.

¹⁴⁸ Stray animals prevent cultivation of open field crops during winter (*rabi*) season. Management of cattle at gauthans will likely pave the way for improved crop intensity, particularly for pulses and millets.

¹⁴⁹ Activities such as largescale compost manufacturing, bio-fertilizer, agroforestry/horticulture nursery, community seed bank, mechanization center, storage, primary processing units etc.

- Project Executives would work directly under the guidance of the SPM and would be responsible for managing the implementation and monitoring of the program at the state level
- PE would also be directly heading the District Coordinators, to ensure effective coordination and implementation
- Collectively, SPMU would facilitate in designing program strategy, implementation guideline, innovative pilots, technical inputs in program implementation. The major role would lie in developing a robust monitoring and evaluation system for the program. This would help in evidence-based program and policy design

II. District level

District unit would be established for effective coordination among the State Management Unit and the Block Implementation Unit. Further, the district unit would enable effective convergence among multiple stakeholders at the district level, for robust spearheading of the program.

- District Project Manager would head the Manager Farm and Value Chain would be responsible for the implementation of the program at the district level
- The DPM would be responsible for decision making and strategizing for district-level implementation
- Further DPM would engage with the key stakeholders for effective convergence
- District Collector would provide guidance and administrative support for program implementation. He would also support in developing a platform through meetings and workshops for collaboration of all the stakeholders
- District Coordinator Farm and Value Chain would strategize project implementation in the district considering the unique geographical and agro-climatic conditions. Further, it would be responsible for collating the demand applications, planning and funds requisitions
- The manager would be majorly responsible for maintaining effective communication with the state team; monitoring the program at the district level and resolve grievances and bottle-necks

III. Block-level

Block Project Manager is the critical link between the District Coordination Unit and the CRC. The idea is to depute resources at the block level which would enable on-ground monitoring, facilitate in effective implementation and robust troubleshooting and grievance redressal. There would be three sets of resources deployed at the block level CHIRAAG – Block Project Manager, FPO and Value Chain Development Officer, and MIS Support Staff, and Community Coordinator. The three resources would work in tandem and effectively to successfully implement the project.

- Block Project Manager would be the monitoring and evaluation officer on the ground for the project
- The Block Project Manager would also be responsible for the establishing convergence between Block Development Officer, and other government officers from key departments
- S/he would regularly share the status of agricultural progress reporting against the program activities and targets with the DPMU and SPMU
- BPM would be the single command officer responsible for the end-to-end implementation of the project activities at the block level
- BPM would manage the field staff
- S/he would ensure effective development of VDP support field staff and spearhead - community mobilization, capacity building interventions, project implementation, progress reporting
- S/he would ensure that all the CRCs receive regular inputs and enable effective forward market linkages

IV. Village Level

At village level project would have community coordinators. They would be responsible for spearheading project implementation at the Panchayat level. It would be leading implementation in 2-3 Panchayat. Collectively they would supervise and develop community resource persons for effective project management and sustainability.

- the implementation of the project in the defined cluster/ demarcated panchayats assigned
- enable community mobilization, the formation of LGs, capacity building and training of the LGs and other community institutions engaged in the farming activities
- develop community champions in the form of community resource persons
- the community cadres in case of agriculture – Krishi Sakhi would facilitate LG formation, conducting the meeting of the LGs, capacity building
- one KS would work with 40-50 farmers and register the farmers at the CRC, and facilitate regular monitoring of the progress interventions at the grass-root level

Partnership with Various Organizations

To leverage the experiences of existing stakeholders working in Chhattisgarh, the project will partner with organizations such as ICAR Institutes, State Agriculture universities and their KVK'S, existing NGO's partners, Agri-business Start-Ups, and other institutions.

Convergence

The NSRA sub-component has a vast scope of convergence with the Directorate of Horticulture, Animal Husbandry and Cooperative, Marketing Federation, Rural Development department apart from other line departments. The maximum no. of interventions covered in the project can successfully be converged with the line departments; the table indicates the various interventions which can be converged correspondingly. The nomination of District Officers of the line department as Nodal Officers will eventually support the subcomponent.

Fiduciary Safeguards Management

There should be transparency in the fund flow mechanism at all the institution. Core banking facilities for fund transfer should be the means of transferring funds. The proper allocation and transfer of funds as per the generated demand and due diligence of the requirement should be properly monitored. At the LG and FPO level the funds would be mobilized through PFMS to ensure robust monitoring, and all transactions should be detailed to the members. Timely reporting and MIS entry should be done to the block and the state level.

Activities monitored by the district should also have transparency in coordination with the state institutional level structures. Proper MIS entry and Monitoring and Evaluation of the project will help in the Fiduciary safeguards.

Governance risks and mitigation measures

Sl. No	Risks	Descriptions	Risk Mitigation Measures
1	Technical/ Design	The project requires complex technical skills at all community institutions and the producer	The community cadres will be trained and will be given hand holding support

Sl. No	Risks	Descriptions	Risk Mitigation Measures
2	Financial	The funds must flow in time to create the desired impact	The process rules are clearly defined
3	Risk of disease/ pest attack and weather hazards	Failure of crop and effect in the production	Timely advisory on the weather forecast to all the FIGs and target farmers. Hand holding of the ARP, Community Coordinator and Area Coordinator
4	Market Risk	The increase in production will decrease the prices	The secondary market will be identified. The cost of production will be minimized. Promotion and establishment of value addition will mitigate the risk
5	Other types of Risk- Misappropriation and corruptions	The funds might not be used for the intended purpose	Budgetary allocation and strict monitoring system. There will be a computerized accounting system and rigorous reporting and furnishing financial report
6	Environmental risks	Lack of environmental management may lead to negative environmental impacts such as pollution from increased agro-chemical usage, disease outbreaks etc.	Implementation of mitigation measures identified under the ESMF

Post Project Sustainability

The investment under this subcomponent will become sustainable because of the following:

- i. The integrated farming systems developed through landscape approach and the inputs regarding extension and training provided for the component will improve the productivity and quality of agricultural production
- ii. Supply of quality inputs, timely advisory on efficient production technology, enabled with marketing provisions will help in the sustainability of the institutions beyond the project time because of assured revenues from the entire system
- iii. Better post-harvest management practices will generate additional revenues and reduce the post-harvest losses as well
- iv. CRCs/LGs formed will develop a link between the rural haats and mandies resulting in effective forward and backward linkages
- v. The project will empower the women and youth to set up small rural enterprises
- vi. The ICT enabled information system to generate all information to the producer right from the start of the production system to the final disbursement of the stock. This will enable to produce quality product and sell them at better price as indicated through mobile information services
- vii. The LG/FPO formed will be sustained through transparent functioning, having annual audits, the release of profit share to the shareholder annually and prompt monitoring and evaluation of the organization will sustain the producers in the organization

5. Component 3- Value Addition and Market Access

Objective: The objective of this component is to improve the incomes of the identified households and enhance their nutritional intake by providing better access to consumption ready nutrition rich foods. The project intends to do this by promoting various post-harvest activities resulting in providing better price realization and availability of nutritious foods. The component shall work on value addition, marketing and building nutrition supportive climate resilient value chain associated with various livelihood activities prevalent at the project locations and will focus on agriculture, horticulture, livestock, fisheries, agroforestry, etc. Initiatives taken under this component shall directly impact the Project Development Objectives (PDO). Value-added products generated through the project will; fetch better value for the beneficiaries leading to income improvement, and shall provide options for consumption of these nutrition enhancing foods resulting in nutrition enhancement

The overall approach of the component is to identify commodities having reasonable production volumes and a promising market potential. The project shall identify value chain gaps in such commodities and take up initiatives to fill these gaps. Building capacities of the value chain actors on various aspects including waste management (especially plastic and packaging), providing them with necessary infrastructure, and mobilizing communities into aggregated Producer Organizations shall be the techniques to fill value chain gaps. All construction activities and contracts to follow the ESMF, construction management guidelines and prepare an EMP, as necessary. Analyses should integrate good practices identified under the ESMF such as provisions for good waste management designs and solutions (in rural haats), GHG emission reduction (in processing and storage centres etc.) in the ToRs.

An essential intervention under this component will be establishment of a **Value Chain Development Cell (VCDC)** which would play a strategic role in the development of the entire value chain eco system in the state. VCDC will start with identifying specific commodities for which the value chain interventions shall be taken-up. In doing so, VCDC will perform a detailed **Value Chain Analysis**, which will help to identify location and commodity specific production/collection information, presence/absence of value chain actors and presence/absence of value addition processes. The project will work with the Livelihood Groups (LG) to identify producers/collectors who will be collectivized to form FPOs at block and/or district level for aggregation and value addition of surplus production/collection. Basis for formation of FPOs will be their business case, and these FPOs will be multi-commodity. The project through its interventions and the institutions, support development of the business ecosystem, creating partnerships for market linkages, skill enhancement, establishing processing Centers, facilitate certification and accreditations, value creation, and strengthen prioritized value chains.

This component has two subcomponents:

5.1. Value addition for nutrition and promoting nutri entrepreneur

This subcomponent attempts to address the issue of availability of nutritious foods by promoting value addition. Value addition of food helps to improve their shelf life hence reduce food loss or wastage. Further, value addition also promotes various forms and options for consumption of nutritious foods. Food storage and value facilities will be promoted at the basic food processing units to be established at the Gothans. The rural markets, known as the '*Haat Bazaar*' will be strengthened and leveraged to improve their functioning and build capacities for food safety and food handling. Considering the importance of '*Haat Bazaar*' in the social culture of the rural areas, these markets shall be developed for creating awareness about nutrition enhancing foods, cooking and feeding practices and Water, Sanitation and Hygiene (WASH).

Key activities to be financed under this subcomponent (a) village level energy efficient infrastructure support to LGs for post-harvest, primary processing, packaging and storage; (b) TSA support for infrastructure and technology investment in common service centers, rural haats, storage etc. and for strengthening community capacity in value addition technology, processes and small food businesses; and (c) training of LGs, SHGs and other community groups in local value addition and in energy efficient practices

Objective: The subcomponent aims to strengthen the micro-level ecosystem post-harvest management facilities and strengthening the rural Haats by developing them into knowledge sharing platforms and providing market infrastructure. Further the subcomponent envisages to provide wide market access by designing retail interventions

5.1.1. Food Storage and Value Addition Facility

Government programs have long focussed on improving the production and productivity. However, poor focus on parallelly building capacities and infrastructure for post-harvest management has resulted in producers getting only a fraction of the actual value realised by the traders. Transformation is needed in promoting value addition activities closer to the farm. Apart from value creation, there is also needed to process the highly nutritious foods produced at the project locations. The irony is that the nutrition indicators among the producers of these nutritious foods are very worrisome.

Setting up the units for basic food processing will help provide a platform for the beneficiaries at the project locations to process a high nutritious food from its raw form to a consumption ready food item. The kinds of equipment that may be made available at these units would be, dryers, grinding machines, mini mills, sorting and grading equipment, other small equipment, etc.

The project envisages to develop common use infrastructure for processing of commodities for home consumption. These would specifically be useful for achieving the projects objective of improving nutrition among the project beneficiaries. Some of the products that could be produced may include;

- Corn flakes mixture
- Raagi muruku
- Grain squares
- Raagi and bajra khakras
- Jowar date and cashewnut cookies
- Jowar sesame bread sticks
- Palak nimkis
- Mixed grain and leaf patties
- Jowar pita pockets
- Spinach pakoda
- Raagi banana pancakes
- Raagi veg roll
- Soya paneer pancakes
- Karela muthias

The project will also invest on establishing storage and warehouse infrastructure which are based on renewable energy, with the aim of retaining the nutritional value of commodities for a longer time.

The investment on this sub component will be based on the local demand and the local context and the process would be detailed out in the relevant Standard Operating Procedure (SoP) and Community Operational Manual (COM)

xi.Promote Nutri-preneurs

The project envisions to develop local nutrition entrepreneurs who could lead community for promoting consumption of nutri-rich variety of food. The nutri-preneurs would take up entrepreneurial activity of setting a nutri enterprise for the production of nutri-rich snack and food items. The idea is to leverage the indigenous knowledge and recipe to produce nutri-snacks locally and promote its sale in local market along with supply to Anganwadi centres. This would support in three-fold manner; firstly, fostering the community participation and ownership for the nutrition support program, secondly, promote indigenous nutritious snack preparation recipe; thirdly, promote local entrepreneurship in the community for income enhancement. The existing community-based institutions would be leveraged to produce the nutri-snacks. The community members would be trained to produce and supply the nutri-snacks. The project would conduct pilot to fund establishment of nutri-snack production units – owned and managed by the nutri-preneurs in the village.

Selection process:

The project beneficiary, who is willing to set-up the enterprise, would self-nominate themselves. An indicative eligibility criterion is as follow:

- She should have at least passed matriculation examination
- She should have some understanding of entrepreneurship
- She should have basic understanding of good nutrition practices

The candidates would submit their application to their respective LG. CC would support the nutri-entrepreneur for the development of the business plan

Implementation Plan:

- State Project Manager would define the guideline for the nutri-preneurs
- State Project Management Unit would support in identification and documentation recipe for Nutri-rich food in convergence with the nutrition expert
- APM Nutrition and SBCC would support in developing training modules specific to cultivation and consumption of nutri-rich crops
- LG would select the nutri-preneur and submit the application to the SPMU through BPM and DPM
- APM Nutrition and SBCC would develop the training module to the nutri-preneur on production and operationalization of the nutri-snack enterprise
- The DC Social (Nutrition) would verify the authenticity of the applicant
- CC would support the Nutri-preneur in developing the business plans
- The Nutri-preneur would be eligible to take up loan from the project for development of the nutri-prise
- CC and DC Social would provide the training to the nutri-preneur for the production of nutri-snacks
- VCDC TSA would train the nutri-preneur in operational aspects of the business and further support in the market linkages for the sale of the nutri-snacks
- The CC would provide regular monitoring and handholding support to the nutri-entrepreneur

Phasing in Strategy for Capacity Building of the Nutri-preneur

Year	Period	No of Districts	No of Blocks	No of Nutri-preneurs trained	% of nutri-preneur
First	2020-21	-	-	-	-
Second	2021-22	3	6	30	42.86%
Third	2022-23	5	8	40	57.14%
Fourth	2023-24	-	-	-	-
Fifth	2024-25	-	-	-	-
Sixth	2025-26	-	-	-	-
Total	-	8	14	70	100%

5.1.2.

5.1.3. Phasing in Strategy

Activity	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
Basic food processing infrastructure at village level	Village	50	250	600	100	-	-	1000
Capacity building of nutri-preneurs	Person		30	40				70

5.1.4. Cost Table

SN	Activity	Unit	Quantity	Unit Cost (INR)	Total Cost (in INR Million)	Total Cost (in US \$ Million)
1	Basic food processing infrastructure at village level	Village	1000	1,00,000	97.26	1.37
2	Capacity building of nutripreneurs	Persons	70	5000	0.4	0.004

5.2. Value addition and accessing profitable markets

This subcomponent directly works on the objective of income enhancement. In doing so the project will look at identifying commodities which are being produced at project locations and hold good market potential. Value addition opportunities will be created within the identified commodities and capacities of Farmer Producer Organizations (FPO). The project will further identify the gaps in the value chain and attempt to fill these gaps with the intent of converting a raw, low-value produce to a value-added produce.

One of the cornerstones of value chain initiatives would be to build and support FPOs. FPOs will play an important role in aggregation of the commodity and performing large scale market facing operations. For example, the FPOs may be involved in managing storage centers, processing centers, forming partnerships with large buyers, private entities interested in establishing higher scale processing facilities, and working closely with the farmers to supply commodities needed by the market. Finance is the most important resource which defines the resilience of a business. The project will support FPOs by financing their business plans and further support them with setting up primary processing centers as per their business plans

Providing assured market access for the commodities and the value-added products is essential for achieving the PDO of income enhancement. The project will take-up various activities with the aim of reaching out to the numerous players and potential partners that will provide VCDC the base for initiating dialogue and attempt to materialize into formal buying arrangements. These activities also include such initiatives that will work on FPO policy advocacy, participation of FPOs in trade fairs, etc. Providing the right ecosystem for the value chain to flourish, requires strategy, consistent handholding, and versatility in responding to changing markets. This will be facilitated by the **Value Chain Development Cell (VCDC)** which will carry-out a detailed Value Chain Analysis (VCA) and then develop an Inclusive Value Chain Development and Strengthening Strategy (**IVCDSS**). This IVCDSS will become the guiding principle for the project to build, strengthen, and nurture the value chain. VCDC will also facilitate implementation of marketing, business development and other promotion events, and go onto follow-up the leads generated through these events to materialize forward linkages, purchase assurances and partnerships. Further, to compete in high-value markets, products are required to have certain standards and quality parameters achieved. For attaining that level of acceptance, the project proposes to establish such infrastructural capabilities which will test and certify the products to match the expectation of the markets. Also, the project will attempt to build other unique platforms like develop a Traceability protocol, secure a Geographical Indicator (GI), etc. The project will also develop a market intelligence platform.

Moreover this sub component would also put stress on the local markets known as the *Haat Bazaar*. The rural markets, known as the '*Haat Bazaar*' will be strengthened and leveraged to improve their functioning and build capacities for food safety and food handling. Considering the importance of '*Haat Bazaar*' in the social culture of the rural areas, these markets shall be developed for creating awareness about nutrition enhancing foods, cooking and feeding practices and Water, Sanitation and Hygiene (WASH).

Objective: This subcomponent encompasses activities to identify commodities grown at project locations having good market potential, fill the gaps in their value chains, with the aim

of realizing higher returns to the small producers. The subcomponent will mobilize small producers into FPOs, finance them for executing viable business plans, conduct market facing events for forming linkages, and establish a Value Chain Development Cell (VCDC) which will orchestrate the entire methodology and steer all stakeholder including other Technical Service Agencies (TSA) toward the set goals.

5.2.1 Strengthening and Leveraging Rural Markets

Local weekly rural markets, also known as Haats, incentivize the rural population and ensure a platform to showcase and sell not only agricultural and allied goods but also the handicrafts, etc. Similarly, Tribal Haats are no different. Each tribal area has a fixed day for organizing these haats for the Scheduled Tribes. Local produces like agriculture produces, vegetables, spices, minor forest produce, wild fruits, honey, clothes, pet birds, eggs, animals, fishes etc. are sold at a reasonable rate, which are comparatively lower than the other markets

“The Haats play a pivotal role as a scene to gather news and information, to exchange views and knowledge, to engage in various social, cultural, religious, and even political activities. They are venues for both commerce as well as festivity and exude a feeling of unity and strength. These occasional gatherings lead to traffic in social, cultural, and economic exchanges

Due to the poor economic condition, the tribal people are unable to afford permanent structures like shops / shades / shelters. Therefore, they are forced to setup their stalls in the open. The project envisages to develop these Haats as a center for knowledge exchange, allowing community to learn from one-another, community paathshala, provide infrastructure like weighing scale and any other machinery/equipment useful for facilitating trade. The DPM-VCD along with the BPIU study the local haats and identify areas of improvement. SPM-VCD along with the VCDC will develop a standard model for transformation of haats.

The detail implementation strategy for Haat Bazaar would be developed by the SPMU once the project gets initiated.

5.2.1. Formation and Nurturing of Farmer Producer Organizations (FPO)

An FPO is a formal higher-level collective of multi-commodity producer/collectors for aggregation, value addition, marketing, and service provisioning for economies of scale. The membership size would range between 300-5000 producers.

The project will attempt to form/support 2 FPOs per block and professional Technical Service Agency (TSA) will be hired to support the project in promotion of FPOs. The scope of work, deliverables, timelines and monitoring mechanism of the TSA will be as per the guidelines provided by the Small Farmers' Agribusiness Consortium (SFAC). However, the SPM-VCD may take deviations in the guidelines after a formal proposal is moved by the SPMU and approved by the CHIRAAG state level advisory committee

The business case of an FPO will be the primary driver of the size of the organization. FPO will be a membership-based organization having representation from the producers/collectors. Identified members of the Livelihood Groups (LG) formed by the project at the village level will be federated to form the Farmer Producer Organization (FPO) at the appropriate level (Block/Sub-district/District) as per the requirement of the commodity and the type of activities. Such guidance would be provided by the VCDC as per the business case analysis done by it. All FPOs in the project will be legally registered bodies.

5.2.1.1. Role of FPOs:

- Synchronising production
- Enhance value by enabling access to new technology
- Technical and quality physical inputs
- Formal finances
- Market-driven extension service

- Accessing remunerative markets
- Accessing captive market opportunities
- Trade either in single or multiple-commodities

5.2.1.2. *Scope of Work:*

The FPOs will leverage the scale of economies for its members and LGs. They will be actively engaged in higher-level aggregation, a higher order of value addition (Primary or secondary level processing as the need may be), branding, marketing, and wholesale/retail selling.

To have a planned value chain development, the SPM-VCD along with the TSA and VCDC will steer the FPOs for the role they shall play in the entire value chain. However, described below are the services envisaged to be taken up by the FPO;

- **Input provision:** While the LGs will be provided with input support through the project, but for any specific input materials, FPOs can buy inputs in bulk using their power of collective bargaining, and then supply it to the members. However, input supply should be only one of the many activities of the FPO
- **Production services:** As small-scale producers/collectors generally have limited assets and skills, FPOs can provide extension services and access to equipment, such as tractors and other farm equipment, to help members increase their productivity and improve the quality of their produce. It will also support its members in synchronising production based on the market demand.
- **Quality control:** to meet the quality standards required by the markets, FPOs would monitor and control the production process and the quality of the final product they sell
- **Co-ordinating production:** To take advantage of different market opportunities and respond to the needs of buyers, FPOs may have to coordinate the individual production of their members. For example, FPOs can meet the demand of buyers, who expect a continuous supply of fresh produce (Eg: Vegetables) throughout the season, by organizing members to plant their crops at different stages during the planting season
- **Processing:** FPOs can engage in processing activities to add value to the produce and access markets further up the market or value chain. However, this shall have to be approved as per the IVCDSS. Based on the level at which processing is required to be done, FPOs may assist LGs to setup processing facilities nearer to the farm level or the operations area of the LG. Such assistance to LGs could be in the form of knowledge transfer, infrastructure, or handholding
- **Marketing:** Marketing the produce of its members' is an important service provided by FPOs and to perform a range of tasks, including understanding market information, identifying market opportunities, sorting & grading, packaging, branding, quality assurance and standardization, pricing, certification, negotiating sales, storing (cold storage & warehousing), distribution and logistics.
- **Trading:** Depending on the commodity, some FPOs can do trading, buying, and selling produce from producers/collectors other than just their members to meet the quantity, variety, or consistency of supply demanded by certain markets. Eg. Delayed marketing of Paddy, they can procure paddy in bulk during the peak production season, store and sell when the price becomes high. While trading value additions too can be undertaken based on market demand. Online Trading of produces through e-platforms will also be encouraged
- **Retailing:** They can also get involved in retailing activities and have retail shops in the cities. The cities have a high demand for niche products, and the consumers are willing to pay high prices for it. The DPM-Value Chain will consult with the VCDC before the FPO takes up such ventures. VCDC will provide required business plan preparation and handholding support to the DPM-Value Chain and the FPO

- **Others:** FPOs can take up any other activities that the member producers/collectors decide to take up or such activities which are listed under the Small Farmers Agribusiness Consortium (SFAC) guidelines

5.2.1.3. *Formation and Promotion of Farmer Producer Organization (FPO)*

FPO Development process flow:

The FPO organization building processes and activities under the project are described as under;

Pre-Planning: The SPM-VCD along with the TSA will develop tools, guidelines, Standard Operating Procedures, Training modules on FPOs. SPM-VCD and the VCDC will develop tools for monitoring of the TSA

Planning: The TSA will identify the prospective members of the FPO, for which it will first choose producers/collectors from among the LGs formed by the project at the village level. In the interest of higher aggregation, the TSA may identify other producers/collectors too from other nearby villages too. The number of producers/collectors to be federated under the FPO will be based on market demand and opportunities in the ecosystem. The DPMU, BPIU, and the TSA will work together and play an important role during this time by developing the ecosystem for the LGs to graduate into FPOs.

Training of implementors: The TSA will train the District and Block project management on the formation of FPOs. The TSA will play a major role in the nurturing and handholding of the FPOs

Formation process:

The steps in the formation process are described as follows:



i. Preparatory meetings with LGs /Producers/collectors

The DPMU and the block team will be proactive and organize meetings with all members at the village level with the support of BPIU on formation of FPO. The meetings will address the following points:

- The need for collective's formation will be explained
- The list of prioritized commodities will be shared, and the rationale followed by the SPMU for choosing the commodities will also be explained
- Appraising the need for effective forward and backward linkages to the producers/collectors
- Opportunities and possible interventions in the value chain of the commodity/commodities
- Explaining the concepts, advantages, and requirements of FPO like economies of scale, market interface, legal recognition, ability to deal with large market players, etc
- Bank linkages and other linkages with developmental programs of line departments.

The office-bearers of LG and any other high potential individual producers/collectors will be taken on an exposure visit to successful FPOs to strengthen their understanding.

ii. Consultative meetings with producers/collectors/ PG representatives

The DPM-Value Chain Development (DPM-VCD) along with the Block Institution Building officer and the TSA will organize a series of consultative meetings at the block level with the member of LGs willing to federate into an FPO. Two to three consultative meetings will take place in two months to facilitate visioning, frame objectives, discuss and decide stake of members, legal form, member constitution, etc.

The formation process proposed for FPOs during the consultative meetings are detailed below:

- **Visioning:** To help in formulating the vision and mission of the FPO and develop the values
- **Setting norms:** To assist in setting up of appropriate objectives and norms, i.e., the role of FPO in preparation of action plan for development of value chain for identified commodities, modalities for forward and backward linkages, regularly scheduled meetings, participation, decision-making, and bookkeeping, etc
- **Membership:** Each group will be sensitized to contribute one-time share capital, and the membership process will be explained to the producers/collectors. They will also discuss the annual membership subscription to the FPO to get the services from field functionaries, bookkeeping, auditing, etc. This annual subscription will be decided by the office bearers of the FPO. The project will propose a minimum per farmer share capital of Rs.1000, but the members can decide the amount. They will be advised to have an equal number of shares among the members to ensure a balance in the power structure of the FPO. The BPIU field functionaries will support the representatives in collection of share money from the producers/collectors
- **Organization set up:** The appropriate organizational structures will be introduced to them. The functions of the General Body, Executive Committee, modalities of the legal structure, framing of by-laws, etc. will also be discussed and decided by the members
- **Election of office bearers:** The general body members will elect the office bearers - the President, Secretary, and Treasurer for a tenure of two years. The roles and responsibilities of the office bearers and placing of staff will be discussed and clarified in the meeting.

iii. Opening of bank account

The FPO will have to open a Bank Account in their name, and two or three office-bearers among President, Secretary, and Treasurer will be authorized to open and operate the bank account. For this, an application to the bank, along with the bye-laws of the FPO and a resolution authorizing signatory, will be submitted to the bank. Two or three office-bearers among President, Secretary, and Treasurer will be nominated as signatories to operate the bank account.

The FPO will also maintain a separate bank account for receiving grant money from the project, and shall be named as "<FPO Name> CHIRAAG a/c". All payments that the FPO shall make for activities pertaining to CHIRAAG funding shall also be made only from this account.

iv. Registration

The BPIU along with the TSA will guide the representatives about the registration process, documents required, etc. and initiate the statutory process required for formation of FPO. While filing for registration it will be mandatory to have a Bank Account in the name of FPO.

After this process, the FPO will be assisted to register under the appropriate action, and the FPO will be able to avail funds through the project only when the governing board is in place, and the formal registration is completed.

Organizational setup of FPOs:

- The members of the FPOs could either be member of LGs or individual producers/collectors. In the case of LGs, it would be represented by the LG members. The FPO should have General Body (GB) and an Executive committee (EC)
- The existing FPOs would be encouraged to enhance the membership of women
- All the members of the FPO will be considered as members of the General Body (GB), which will review the policy decisions taken by the EC. The GB will elect the office bearers and other members of the Executive committee (EC) and subcommittees. The GB will approve the business plan, annual budget, and accounts

- The Executive Committee is a functional wing of the GB. It will have a President, Secretary, Joint Secretary, and Treasurer apart from 7 members (up to a maximum of 11 members). The EC meetings will be conducted every month. Minimum 2/3 of members will form a quorum for every meeting
- Each FPO shall form the following sub-committees to support the functioning of the FPO:
 - Procurement and Finance sub-committee (3 members)
 - Production and Business Operation sub-committee (3 members)
 - Quality assurance committee (3 members)
 - Marketing sub-committee (3 members)
- In each sub-committee, one member will be from EC and two members from GB. Tenure of all subcommittees will be two years. They will be selected in the General Body. Apart from the above-listed sub-committees, the GB can decide to have more sub-committees, based on the requirement of the FPO activities. The Roles and Responsibilities of the Executive Committee and the Sub-Committee for FPO are mentioned in the [Annexure-07](#)
- The governance will be supported by a professional management structure comprising of a CEO and support staff
- The DPM-VCD would ensure adequate representation of STs, women, and other socially vulnerable groups in the governance of the FPO. This would be in proportion to their membership in the FPO.

Legal status of FPOs:

Different legal options are available for the producer organizations while forming a legal entity. The current legal options available in the state for FPO registration are either the Chhattisgarh Cooperative Societies Act 1962 or to register under the Producer Companies Act, 2002 as provided in the SFAC guidelines.

An FPO formed under the Companies Act is called as a Producer Company and has several advantages over an FPO formed under other acts. The Companies Act infuses a professional attitude into management. It takes care of the flaws in the cooperative societies but keeps its strengths. It has also borrowed the strengths of corporate companies. However, the management of Producer Companies is more difficult and cost-intensive.

The pros and cons of different options available for Farmer Producer Organization, i.e., producer companies and Cooperatives is presented in the [Annexure-08](#)

Nurturing and Handholding:

The TSAs will facilitate the DPMU in nurturing and handholding the FPOs by placing systems, framing guidelines and policies on HR, Financial, Procurement and Marketing. The TSA will design these modules in consultation with the Block Institution Building Officer and the DPM-VCD. The TSA along with the BPIU may perform a need-assessment by doing a Focus Group Discussion (FGD) on the field.

It will be the primary responsibility of the DPM-VCD and the District project Coordinator to monitor the work of the TSA and the BPIU. VCDC will develop the monitoring tools which the district can use.

- a. Systems strengthening: The General Body shall meet at least once in six months. In the initial phase, the FPO may be encouraged to have a General Body meeting once in three months. The Executive Committee of FPO shall meet at least once in a month. The TSA and the block team may handhold or facilitate the FPO in conducting the meetings
- b. Identification and placing of staff: The FPO will have a team of staff comprising of a CEO and support staff in carrying out the business activities. The number of staff and

support staff will be based on the business volume/transaction. The executive committee would be involved in the identification and selection process of the CEO, staff, and support staff. The selection and screening process will be developed and laid down as part of FPO guidelines, and the steps would include the following;

- The Executive Committee (EC) will be trained on the selection and recruitment process
- Notice for the recruitment of the staff may be given through advertisement in local papers and notices placed at the Gram Panchayats within the block
- The selection procedure would involve a process of an interview done by the EC members
- A resolution will be passed into the EC meeting after the selection process is completed

Business Operations:

The TSA and the DPMU along with the BPIU will handhold the FPO in the initial years on the following aspects. For this the SPM-VCD and the VCDC will constantly provide support and knowledge transfer to the implementation teams;

- Providing efficient backward and forward linkages like procurement of raw materials, commodities, and services, product sales and distribution, packaging, branding, marketing, etc.
- Costing and pricing of products (production, service or retail)
- Ensure quality assurance mechanisms and address quality concerns
- Support to prepare standard operating procedures and to implement them
- Helping to develop efficient storage, logistics/transportation of goods
- Participate in the FPO review meetings to identify issues and take up corrective measures

Marketing Linkages:

FPOs will explore various markets by participating in the buyers-sellers meet, exhibitions, trade fairs, etc and build suitable partnerships. The DPMU will facilitate the FPOs in establishing the market linkages with the support of the TSA, SPM-VCD and the VCDC

5.2.1.4. Growth path of FPOs:

Phases	Milestones	Timeline
Promotional Incubation/Early	<ul style="list-style-type: none"> • Legally registered • Governance and Management structure roles defined • Office and systems established like bookkeeping and accounts • Business plan as part of core activity • Initiation of business development functions 	18-36 Months
Emerging /Growing	<ul style="list-style-type: none"> • Arrangements with financial and technological institutions, government departments established • Tie-ups with private market players • Support services in Quality control, Procurement, Grading, Storage, Processing, Marketing services initiated 	36-60 months

Maturation /Business expansion /consolidation	<ul style="list-style-type: none"> • Access to investment, technological and markets • Increased Profitability among members and economic viable • The institution acts as a nodal agency for various government schemes • Increased producers/producer group willing to join the federation 	>60 months
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5.2.1.5. *Capacity Building*

The FPOs will require systematic capacity building inputs at various levels to execute the functions effectively and efficiently. The Board of directors, Executive Committee, CEO, and support staff will require various technical inputs to develop their knowledge, skills, and attitudes and build their capacity to manage the business activities. The capacity building initiatives will also cover training on waste management (especially plastic and packaging). The induction program and other trainings for FPO staff would also be planned. The CEO will also undergo a special certificate program in FPO management.

The training curriculum will be customized based on the needs and constraints of the FPO member in pursuing economic activities;

The capacity building program would include the following areas:

- Organizational development
- Orientation on the organization (Nature, Objective, Purpose, Activities)
- Statutory functions and its management
- Leadership trainings
- Business plan preparation
- Enterprise development
- Financial management
- Marketing management
- Procurement and Inventory management
- Bookkeeping and accounting

The TSA will develop the training modules. The training events will be facilitated and coordinated by the DPM-Value Chain. The BOD and CEO training development modules may be prepared in partnership with reputed management institutes, VCDC and the SPM-Value Chain. These programs would result in the strengthening of FPOs on Governance, finance, business technology, and management aspects

Process to be followed for developing modules: Below is the process to be followed while developing the training modules;

- While the mobilization of the FPO members is in the process, the TSA and the BPIU will conduct need-assessment exercise. The TSA will pay attention to identify specific needs of every FPO apart from developing standard modules
- Having identified the areas of improvements, the TSA will discuss the finding with the DPMU members on the suggested modules to counter the weak areas of the FPOs
- After reaching consensus with the DPMU and BPIU, the TSA will develop the modules and submit to the DPM-Institution Building
- The DPM-Institution Building will revert to the TSA with their observations within 7 working days

- The TSA will update the training modules and develop a training calendar to deliver the trainings
- All training modules will be developed in parts; Basic and Advance
- Each of the trainings will be repeated in a gap of 6 months
- The DPM-Institution Building will also conduct random assessment of the training retention among the FPOs and assign refresher training course to be conducted for the FPO. TSA will be required to carry our refresher training with 15 days of such assignment being notified

Exposure Visits: The project will take up exposure visits for the FPO members. These exposure visits will be aimed at helping FPOs learn from other successful FPOs in the country and adopt practices which have proved highly beneficial to other FPOs. These exposure visits may also include visits to trade fairs, technology demonstrations, policy advocacy events, and confederations. The primary responsibility of arranging these exposure visits shall lie on the TSA appointed for mobilization and capacity building of FPOs (as per SFAC guidelines). Below is the process to be followed for monitoring the exposure visits

- The TSA will plan the schedule for the exposure visits as per the SFAC guidelines and inform the SPM-VCD about the plan
- Members for exposure visit will be nominated by the executive board of the FPO
- After the exposure visit has been completed, the TSA will submit a report describing the learning that the FPO members have had during the visit. The report will be submitted to the DPM-VCD and the SPM-VCD
- The SPM-VCD will forward the report to SPM-Monitoring and evaluation and the VCDC for taking up random monitoring and assessment

Business plan preparation: The preparation of the business plan should involve the LG representatives so that the ownership of the business plan remains with them. The members of the FPO should ensure that the business plan contains details about selected economic activity, the total cost required, members involved, other credit linkages, marketing opportunities, expected income and expenditure details. The business plan should be planned, implemented, and managed in a participatory way and agree on all aspects of the business plan, selection of technology, total cost of the project, amount of equity to be mobilized, and financing the business plan.

The TSA will facilitate and provide expertise in preparing Business plans. The DPMU will support the FPO in business plan preparation. The TSA will ensure that all the Business Plan are submitted to the SPM-Value. These business plans will be sent by the SPM-Value Chain to the VCDC for its review. Once the business plan has been reviewed, the TSA will be free to discuss it with the community

The VCDC will also deliver a training session at District and block level on the best practices in business plan preparation. T/he target audience for this training will be the DPMU and BPIU. This training will be delivered through a virtual classroom or may be developed as an Audio-Visual social media viral.

5.2.1.6. *Infrastructure and value addition*

Minimizing post-harvest loses is a critical factor for enhanced price realization and enabling climate resilience. Food loss and waste account for about 4.4 giga tonnes of greenhouse gas emissions each year; these include on-farm agricultural emissions and the energy used to produce, transport and store food that is ultimately lost or wasted. Food loss and waste (FLW) reduces the amount of food available for distribution and consumption, decreases food security, and increases the environmental burden of food production. Combating FLW addresses the key pillars of climate-smart agriculture for farmers by increasing productivity, promoting adaption to climate change, and mitigating greenhouse gas emissions. Concerted efforts need to be taken to improve inventory management in the warehouse, enhance post-harvest care to retain quality and empowering farmer groups with physical connectivity to lead to scale in cultivation and post-harvest.

To minimize the post-harvest loss and maximize crop value realization, the project envisions to establish storage solutions and cluster-based agro-processing units. The model is aimed at the development of modern infrastructure to set up primary storage and processing units that cater to sorting, grading, cleaning. The model is to be implemented in selected project areas as shall be summarized under value chain priorities stated in the IVCDSS. Such interventions would build a robust supply chain, minimize the post-harvest losses and add value to the produce, which will result in an increase of income of the farmers, and create employment at the local level. Post-harvest local processing units act as a key accelerator for increasing farmers' income.

The storage centers may be developed following the principle of scientific warehouse storages and WDRA guidelines in partnership with warehousing service providers like Star Agri, etc. This will enable for taking up collateral financing based on E non-negotiable warehousing receipts and future trading options at NCDEX platforms. Benefits of developing warehouse and primary processing units:

- Minimize the crop loss due to harvest and post-harvest management
- Minimize the financial losses incurred due to the transport of waste along with the crop produce

Facilitating aggregation and setting up processing facilities for the FPOs will be the cornerstone to the transformation of the Value Chain of prioritized commodities. In doing so the FPOs will need to establish storage centers closer to farms and setup processing facilities as per the level and volume of processing.

The project will support the FPOs to setup processing facilities, procure necessary infrastructure machinery/equipment such as packing machine, sorting machines, etc. The project will fund interventions in areas of agriculture, horticulture livestock, fisheries, sericulture, floriculture, beekeeping and dairy. All construction activities and contracts to follow the ESMF, construction management guidelines and prepare an EMP, as necessary.

The FPOs will study the business feasibility and could establish infrastructure or facilities within the operational area of any of the LG members federated under the FPO

However, the rationale behind supporting an FPO with such infrastructure and value addition facilities will be a **viable business case and sustainability plan**.

While the SPM-VCD and the team of VCDC will focus on prioritized commodities, it shall also identify any 'low-hanging fruits' in establishing processing centers or other value addition activities which could have an immediate benefit to the community. These would include produce from agriculture, horticulture, meat, milk, fisheries, agroforestry, sericulture, floriculture, beekeeping, etc. In doing so, VCDC shall ensure that the proposed value addition activities have a sustainable business case. Some example of value addition activities are listed below, which the project believes can be taken up by the FPOs and will result in gains. However, the project will explore all possible opportunities to establish profitable processing Centers resulting in value gain for the FPOs;

Commodity Name	Type of Processing
Potato and Sweet Potato	Project locations in North Chhattisgarh are suitable for production of Potato and Sweet Potato. Potato and Sweet Potato can be processed into flour, paste, etc , and can be generate good value for the farmers
Fish Seed	Taking up fish seed production as an activity by the FPOs is envisages to be a profitable activity.
Mushroom	Processing for making products like mushroom powder, mushroom papad, pickles, etc
Tomato	Tomato processing for making pickles, powders, puree, sauces, etc
Fruits	Making jams, concentrates, juices, candies, crystalized fruits, chutneys, sauces, squash, dried fruits, etc
Chana	To make roasted channa, powders, etc
GroundNuts	Chikki, sweets, roasted muffli, etc

Nutrisnacks	Processing centers for manufacturing nutrition bars, dry snacks made of millets, multi-grain flours, etc
Ginger, Chilli, Garlic	Paste, powder
Aamla	Murrabba, aamla powder, Aamla candi, aamla digestive, aamla juice, etc
Flowers	Dye making, colored powder making, etc

5.2.1.7. *Value Chain Development and Strengthening*

Background: Growth and development of agricultural value chains for local and external markets can be considered as a powerful tool for poverty reduction and to fight against the challenge of food-security. This particularly makes a strong case in India where farmers producing profitable agriculture allied produce like; fresh fruits and vegetables that have higher potential for value addition as compared to conventional crops, and **if access is made available to processing, marketing and distribution, this could enhance the value of the final products** and higher value realization in the hands of the producer.

Fueled by these new strategic directions, there is significant demand by value chain actors for technical assistance, improved production technologies, business development services and linkages to markets along value chains. However, limited access to input and output markets constrain smallholder agricultural development in India. Lack of knowledge and limited capacities of public and private agents to undertake market-led agriculture development also hamper growth.

Value chain development: A value chain brings all the stakeholders engaged in the production system on a common platform to contribute their best, while ensuring fair deal and transparency. The stakeholders involved in **post-production activities are the agencies organizing collection, grading, storage, transportation, processing and marketing of the produce.** Agencies like financial institutions and market information centers are also part of the value chain. Efficient linkage of various stakeholders improves production, price realization and profitability.

Value chain development intervention: Concerted activity to drive value chain development of a certain kind. Value chain development interventions can focus on improving business operations at the level of producers, processors and other actors in the chain and/or the (contractual) relationships among them, flow of knowledge and information and innovation. **Value chain development can also foster overall coordination in the chain; participation of selected beneficiaries in local, national or global value chains; reduction of entry barriers and a higher share of value addition for certain actors.**

Some of the activities involved in Value Chain Development are;

- Value Chain Selection, Validation and analysis
- Design of Value Chain Interventions
- Implementation planning
- Technical handholding
- Processing and Packaging support
- Linking to the market
- Designing product, based on market requirement
- Monitoring and Evaluation of VC activities

Project focus for value chain development: In CHIRAAG, the aim is to transform the entire agriculture production, including allied sectors such as agriculture, horticulture, livestock, dairy, and agroforestry. With the same view, the project has been conceptualized to promote Integrated Farming Systems in such a manner that output of one may become the input for another, or one supports the survival for another. Example; the maize produced from the agriculture farms become the feed for

livestock sector; organic waste and farm residues become a source of nutrition rich manure; Trees planted under the Agroforestry plan provide natural fencing to the farms, etc.

The project will take up concerted efforts to transform the value chain of following sectors;

- (a) Agriculture, Horticulture, and Agroforestry
- (b) Livestock small ruminants (Poultry, Goatery, Piggery)
- (c) Dairy

Value Chain Analysis: The Value Chain Development Cell (VCDC) of the project will carry out the VCA. This activity will lead to informed investment planning and subsequent promotion of FPOs, value addition, and marketing in the prioritized commodities. Additionally, the VCA will identify collaborative opportunities between the private sector and other actors from the community in the value chain viz., common infrastructure for storage/logistics, processing, market information, etc.

The VCDC will use information like; production quantity, number of producers/collectors associated to identify a preliminary list of commodities on which a primary analysis could be done. The commodity selection framework will help the VCDC to identify the best suited commodity for which the detailed value chain analysis will be done.

Findings of the report will pave way for furthering the sector-wise interventions.

5.2.1.8. *Procurement of Technical Service Agency (TSA):*

To handhold the producers/collectors of the above-mentioned sectors through the planned transformation of the entire value chain, the project will hire professional Technical Service Agencies (TSAs) who shall be on-boarded as per the procurement guidelines of the project. These TSAs may include relevant line departments, autonomous organizations under State/Central governments, Government Institutes/Research Bodies, private agencies, and Voluntary Organizations (VOs). However, prior experience of working on similar assignments shall be treated paramount while awarding this assignment to the Technical Partner Organizations.

Separate TSAs will be hired for developing the value chain of the following three sectors;

- Dairy value chain
- Small Ruminants' value chain (Poultry, Goatery, Piggery)
- Agriculture, Horticulture and Agroforestry value chain

These TSAs shall be onboarded and monitored on the project by the VCDC to ensure that the approved value chain strategy is the focal for all activities being carried out by the TSAs. The Terms of Reference (ToR) for each of the above has been prepared and provided in [Annexure xx](#).

5.2.2. **Financing to Farmer Producer Organizations (FPOs)**

Financial requirements and challenges faced by a FPO are, if not more at least as much as any other startup. Poor availability of funds makes its challenging for the FPOs to reach their full potential. Once formed the FPO has the following sources of finance for meeting its expenses, risks, others:

- **Producer equity:** Small and marginal farmers can make limited contributions and trust and higher ownership hence increased equity contribution comes with time
- **Accumulated profits:** Management of the FPOs must deal with distribution v/s retention dilemma i.e. distribution of profits leads to higher income and maybe loyalty; retention of profits on the other hand helps build better financial statements – thus philosophy of the FPO has to be well defined basis relevant socio – economic parameters

- **Credit service providers:** There exist a slew of international and national financial institutions, apex organizations, venture capital funds for linked organizations, other financial products: collateral services, purchase advances, MFI loans to farmers, etc

Availing funds from the formal sources requires to have reliable and attractive financial statement. In the Initial years of the FPO, focus is more on supporting FPOs with sustainable business activities and building corporate governance.

5.2.2.1. *Project Support*

The project envisages to form/support 2 FPOs at each of the project blocks. Apart from mobilizing producers/collectors into a common objective group working on a sustainable business plan, these FPOs will be provided extensive financial support by the project. This financial assistance will be used by the FPOs to meet their operational expenditure and capital expenditures. This would include, salaries, establishment costs, and setup of storage centers, sorting and grading facilities, purchase of equipment's and machineries, procurement of specific knowledge from technical partners, etc.

5.2.2.2. *Basis for support:*

The financial support to the FPO will be decided based on their business plans. The TSA will develop a business plan for each FPO. These business plans would then be reviewed by the BPIU, DPMU, and the VCDC, before being approved by the SPM-VCD. These business plans would identify the commodities it will work on, kind of processing it will take, requirement for funding and estimate time for ROI. Basis the reliability of the business plan, the project will support the FPO with financing.

5.2.2.3. *Process note:*

Below is the process that shall be followed by the project for financing the FPOs for their initial setup and for establishment of processing infrastructure and value addition facilities;

- TSA and the Block Project Manager – Value Chain Development to support the Executive Committee of the FPO in developing a business plan
- The business plan will be discussed in the General Body meeting of the FPO and shall be approved
- Based on the approved business plan, FPO to make a draft proposal for funding needs. The business plan will also be attached
- TSA and the block value chain officer will support the FPO in make such proposals
- Such proposals shall be in line with the strategy outlined in the IVCDSS
- FPO will submit the proposals to the DPM-Value Chain for its evaluation
- The DPM-Value Chain will study the proposal and forward it to the SPM-Value Chain if found suitable
- SPM-Value chain will study the proposal and forward it to the VCDC for its opinion
- VCDC submit its opinion with 5 working days
- Basis the opinion submitted by the VCDC, the SPM-Value Chain will approve/disapprove the proposal
- Once the proposal has been approved, the SPM-VCD will look into possible procurement that can be provided from the SPMU
- The TSA and BPIU may support the FPO in identifying suitable sellers
- All disbursements for the approved proposals shall be completed within 15 working days. However, the SPMU may at its discretion release the funds on tranche basis for specific proposals, to be detailed out later when the project initiates.
- The SPMU will develop a detailed protocol for all disbursements to the FPO, to ensure that there is no misuse of funds. Some of the steps in this direction could (a)

reimbursement-based funding (b) direct payments to vendors (c) having a project level pool of notified vendor for all kinds of purchases (d) partial initial funding (e) milestones-based payments, etc.

- The FPO will be required to record the transaction in its books and the audited books reporting the utilization of funds shall be submitted to the SPMU

5.2.2.4. *Convergence:*

There are numerous opportunities for converging with other government program to facilitate funds for FPOs. Depending on the nature of support required there are various schemes that the project will attempt to converge with. VCDC will facilitate the TSA in converging with other government program. Below listed are some of the government programs that may be considered;

- Mission on Integrated Development of Horticulture – has provision for extending support in establishment of processing facilities and strengthening of FPOs
- Sub Mission on Agricultural Mechanization – promotes agriculture mechanization
- NABARD – provides multi-dimensional support
- Pradhan Mantri Kisan SAMPADA Yojana – scheme for development of agro-processing clusters
- Chhattisgarh State Rural Livelihood Mission (SRLM)

5.2.2.5. *Phasing in Strategy:*

Activity	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
Hiring and onboarding of various TSAs	TBD	As per the requirement of the project						
Strengthening local haat bazaar	TBD	As per the project operational plan and requirement						
Organising district krishi melas	16	To be decided in consultation with the district team and administration						
Financing to FPOs	FPO	2	10	10	6	-	-	28

5.2.2.6. *Cost Table:*

SN	Activity	Unit	Quantity	Unit Cost (INR)	Total Cost (in INR Cr)
1	Hiring and onboarding of various TSAs	TBD	TBD	NA	29.3
2	Strengthening local haat bazaar	Haat Bazaar	TBD	NA	1.3
3	Organising district krishi melas	events	16		4.8
4	Financing to FPOs	FPO	28	1,000,00,00	28

5.2.3. Marketing, Promotion Activities and Events

The SPMU-VCD and the VCDC will plan the various activities under this subcomponent and shall be supported in implementation by event management firms. Considering that some of the activities under

this subcomponent shall be at a large scale and may require wide participation from the project staff, the SPM-VCD will notify the role and responsibilities of the supporting project staff while planning implementation of the activities. The activities under this subcomponent are described below;

5.2.3.1. *Investor summit:*

Aimed at promoting investments into the processing of produce coming from the allied livelihood activities being covered under the project. The project will plan **1 investor summits during the project tenure**. The steps to be followed while implementing such events is described below;

- (a) SPM-Value Chain and the VCDC team to make a draft proposal for the Investor summit, stating the objectives, intended audiences, expected budget required and the expected outcome of the summit
- (b) SPM-Value Chain and the VCDC will present the proposal before the SPMU and discuss possible dates for conducting an investor summit
- (c) After the date has been finalized, the SPM-Value Chain will form a committee under the VCDC to implement the event
- (d) SPM-Value Chain will steer the protocols related to the event, including confirming the participation by the chief guest identified by the PD
- (e) The SPM-Value Chain will also initiate dialogue with other departments which shall be required to be present during the event, for example: CSIDC, etc.
- (f) VCDC will release a draft implementation plan and start confirming the participation by the investors
- (g) All procurement decisions related to the event shall be routed through the SPM-Program Support and procurements shall be made only as per the project guidelines
- (h) VCDC will regularly update the SPM-Value Chain and the COO of the progress
- (i) After implementation of the event, SPM-Value Chain along with the VCDC and SPM-Program Support will develop a detailed statement of accounts and share with the SPMU
- (j) SPM-Value Chain and the VCDC will action upon the leads generated during the event and share the action report every 15 days with the COO

5.2.3.2. *Buyer-seller meet and District level Krishi mela:*

These are structured to promote the products of the prioritized value chains being promoted in the state. Apart from offering increased visibility, these meets also serve the purpose of creating awareness about the market and connecting enterprises to distant but relevant markets. These meets could be commodity or commodity group-specific, either fresh or primary processed. The steps to be followed while implementing such events is described below;

- (a) SPM-Value Chain and the VCDC team to make a draft proposal for the buyer-seller meet, stating the objectives, intended audiences, expected budget required and the expected outcome of the summit
- (b) SPM-Value Chain and the VCDC will present the proposal before the SPMU and discuss possible dates for conducting an investor summit
- (c) After the date has been finalized, the SPM-Value Chain will form a committee under the VCDC to implement the event
- (d) SPM-Value Chain will steer the protocols related to the event, including confirming the participation by the chief guest identified by the PD
- (e) The SPM-Value Chain will also initiate dialogue with other departments which shall be required to be present during the event, for example: CSIDC, etc.
- (f) VCDC will release a draft implementation plan and start confirming the participation by the buyers and sellers
- (g) All procurement decisions related to the event shall be routed through the SPM-Program Support and procurements shall be made only as per the project guidelines
- (h) VCDC will regularly update the SPM-Value Chain and the COO of the progress

- (i) After implementation of the event, SPM-Value Chain along with the VCDC and SPM-Program Support will develop a detailed statement of accounts and share with the SPMU
- (j) SPM-Value Chain and the VCDC will action upon the leads generated during the event and share the action report every 15 days with the COO
- (k) VCDC will facilitate signing of MOUs between the interested parties

5.2.3.3. *FPO Summit:*

An enabling ecosystem needs to be created to facilitate emergence of robust FPOs with integration of multiple stakeholders. The primary goal of this activity is to focus attention on the immense opportunity that Farmer Producer Organizations (FPOs) present to transform agriculture in and contribute towards the visionary goal of doubling farmers' income.

The project will conduct **2 FPO summits during the tenure of the project**. One of these two summits will be held at state level and will attempt to bring all the FPOs in the state under one roof to create a state-wide networking event, allowing the FPOs to interact and learn from each other. The second FPO summit may be held at a National level, bringing the best FPOs from all over the country and the state on one platform. Other agriculture financing agencies, technology enterprises, marketing houses, input suppliers, etc may also be invited to participate in such event. However, the core aim of the events will be to expose the FPOs of the state to best-of-the-best and accomplished FPOs, allowing them to learn from each other. Not just the success stories, but also the failure stories shall be discussed

5.2.3.4. *Participation in trade fairs*

These are exhibitions at which businesses in a industry promote their products and services. The project will facilitate participation of FPOs, academicians, project staff, and etc to participate in relevant trade fair at national and international level for promoting their products or to visit their trade fairs to leverage upon partnerships that could be developed with business promoting their products. The project will plan participations in a minimum of **12 trade fairs every year during the project tenure**. The steps to be followed while implementing such event is described below;

- (a) SPM-Value Chain and VCDC to list all the trade fairs that are happening in the country and abroad over the next 12 months. This list will cover only the most prestigious and useful trade fairs which are useful for strengthening the Value Chain development agenda of the project
- (b) The proposed list shall be presented before the SPMU and two events shall be selected as the most preferred event for which participation shall be mobilized
- (c) The SPM-Value Chain will notify the selected events to the DPM-Value Chain and the Block Value chain officer, inviting participation from the interested FPOs, and project staff
- (d) The notification from the SPM-Value Chain will provide details information of the trade fair, timelines for enrollment, and the maximum number of persons that the project will support
- (e) The project will provide 100% support for travel, accommodation and participation fees (if any) to the project beneficiaries, however, only 50% support to participation of persons from any other category
- (f) At no time will the number of beneficiary participation shall fall below the 50% mark of the total number of budgeted persons for participation per trade fair
- (g) VCDC will release a draft implementation plan and guidelines
- (h) All procurement decisions related to the participation shall be routed through the SPM-Program Support and procurements shall be made only as per the project guidelines
- (i) VCDC will regularly update the SPM-Value Chain and the COO of the progress
- (j) After implementation of the event, SPM-Value Chain along with the VCDC and SPM-Program Support will develop a detailed statement of accounts and share with the SPMU

- (k) SPM-Value Chain and the VDCD will action upon the leads generated during the event and share the action report every 15 days with the COO

The net outcome expected from the activities listed under 'Partnership Events' is expected to materialize into various PPP and PPCP partnerships, establishment of primary, secondary, and tertiary level processing facilities and developing new markets for the produce within the state.

5.2.3.5. Branding and Packaging

Branding is the process of creating and disseminating the brand name. This is done through various collaterals that cumulatively form the brand, these include; (a) Brand Name and its description, (b) Brand Logo, (c) Brand Tagline / punch line (d) Brand Story, and (e) Product Package Design

The project proposes to conduct **one unique crowd-sourcing event to develop a state level branding strategy** and brand elements for the produce of Chhattisgarh. The detailed concept note has been provided in **annexure xx**. This shall be a one-time activity during the tenure of the project, and shall be planned at an appropriate time, after FPOs have attained certain level of maturity.

Further to develop a unique and attractive packaging, the project will attempt to partner with specialized institutes like The Indian Institute of Packaging to develop packaging solutions which will immensely help the FPOs to have one unique identity

5.2.3.6. Phasing in Strategy

Activity	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
FPO summit including cost of event management firm	events	-	-	-	-	1	-	1
Investor Summit including cost of event management firm	events	-	-	-	-	1	-	1
District level krishi mela	events	-	-	3	5	5	3	16
State Level Buyer-seller meet including cost of event management firm	events	-	1	-	-	1	-	2
Participation in trade fairs	events	-	2	2	2	3	3	12
Brand co creation event including event management firm	events	-	-	-	1	-	-	1

5.2.3.7. Cost Table

SN	Activity	Unit	Quantity	Unit Cost (INR)	Total Cost (in INR Million)	Total Cost (in US\$ Million)
1	FPO summit including cost of event management firm	events	1	7500000	7.5	0.10
2	Investor Summit including cost of event management firm	events	1	10000000	10	0.14
3	District level krishi mela	events	16	3000000	48	0.66
4	State Level Buyer-seller meet including cost of event management firm	events	2	10000000	20	0.27
5	Participation in trade fairs	events	12	1000000	12	0.16

6	Brand co creation event including event management firm	events	1	7500000	7.5	0.10
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5.2.4. Value Chain Team for Market Partnerships, Intelligence, Business Development

5.2.4.1. Establishment of a Value Chain Development Cell (VCDC)

The purpose of establishing a Value Chain Development Cell (VCDC) is to build a robust value chain for each of the prioritized commodities which shall ensure a smooth transition of an agriculture, allied and/or agroforestry produce from its raw form to a consumption ready competitive product, with the aim of improving the incomes of the project beneficiaries. In doing so, the VCDC shall study the current status of value chain of prioritized commodities, and lay the path to fill the gaps in the value chain, by building capacities of value chain actors, and processing and value addition of commodities, further facilitate linkages with private entities to provide a market for such value-added products.

VCDC will facilitate the project in achieving the objective of income enhancement of the intended project beneficiaries. To identify opportunities for market linkages and form innovative partnerships involving the community, private entities, and the government, the VCDC will steer various events during the project tenure and provide a stage for the producers and products of Chhattisgarh to be showcased.

The VCDC will work on the entire ecosystem of the value chain for prioritized commodities. This would include; (i) Guiding the project on commodities and locations for forming FPOs for aggregation and value addition, (ii) strengthening the project to capacitate the value chain actors with knowledge, practice, infrastructure, access to finance and markets, etc (iii) business plan support (iv) facilitating market linkages and identifying captive market opportunities, and (v) making best use of convergence opportunities to facilitate maximum benefit to value chain players

Scope of Work:

(a) Planning, Diagnostic study, and Strategy:

- i. VCDC will facilitate **planning and oversee the implementation of CHIRAAG Village Development Plans (CVDP)**. VCDC will facilitate that the CVDP activity covers all aspects related to value chain status and community demands
- ii. The VCDC team will conduct a **Value Chain Analysis (VCA)** for key commodities that the project will identify based on the volume of production/collection, the number of producers/collectors associated, and further filtering it through a commodity selection framework. The **prioritized commodities** for this study shall be approved by the Project Director and proposed by the SPM-Value Chain Development and Marketing and the VCDC. **Refer to Annexure xx for a detailed note on VCA.**
- iii. Based on the findings during value chain analysis, the **VCDC will develop an Integrated Value Chain Development and Strengthening Strategy (IVCDSS)** for the transformation and development of the value chain of prioritized commodities. This strategy note will provide the pathway for formation and capacity building of the FPOs, aggregation, storage, sorting/grading/packaging, processing, branding, market linkages, etc.

(b) Support in the formation and strengthening of FPOs:

- i. VCDC will facilitate the project implementation teams **in identifying locations and commodities for which FPOs are to be formed**. VCDC will set **targets and track progress for the formation of FPO** and local producer groups
- ii. The project proposes to form at least one FPO at each of the project districts, for which a Technical Service Agency (TSA) shall be onboarded. The VCDC will facilitate the SPM-VCD in **onboarding and monitoring of the TSA, tracking**

activity progress, and assessing the institutional strength and corporate governance of these FPOs

- iii. **VCDC will support in training the project staff and develop TOTs** to build the capacity of project staff on FPO formation and management
- iv. VCDC will facilitate FPO process standardization, and it will work with the TSA/TsAs to develop tools, guidelines, Standard Operating Procedures (SOP), Training modules, roll-out plan, and milestones, for FPO mobilization, handholding, and management to ensure the formation of self-sustainable and profitable FPOs
- v. VCDC will facilitate SPM-VCDM in development of a tool to track the milestones set for FPO formation and management, and accordingly **monitor the disbursements of start-up funds to FPOs**
- vi. VCDC will support and monitor the TsAs to **develop and deliver advanced training module** with the focus on strengthening **entrepreneurial skills of the Board of Directors of FPOs**
- vii. VCDC will work with the TsAs to **plan, arrange and execute the exposure visits** for FPOs
- viii. VCDC will develop business plan template for FPOs and will guide the project staff/TSA in building realistic business plan. It would also **assess the business plans** and suggest necessary steps for translating into successful businesses. For this, VCDC will deliver a training session at division/district/block level on the best practices in business plan preparation
- ix. The project will support FPOs in setting up value addition infrastructure. **VCDC will develop guidelines and monitor implementation of the same, to manage the entire life-cycle of setting up such infrastructure by the FPOs, by developing guidelines, assess viability of the proposals by FPOs**, support in procurement, monitor implementation, ensure required knowledge transfer takes place, and then constantly record/track/oversee the impact of the support extended
- x. Looking at increasing opportunities in modern marketing platforms such as **Direct Marketing, online retail, digital marketing**, etc., VCDC will assess opportunities for initiating activities in these areas. These will open new market opportunities for the products of CHIRAAG intervention areas. VCDC will also identify specific interventions, develop plans, and support the SPM-VCD in implementation of such plans

(c) Value Chain Development of agriculture and allied sectors:

Identifying and bridging the gaps in the value chain of prioritized commodities (including the allied sectors) will be a path-breaking intervention of this project. Further, the project recognizes the immense opportunities that Poultry, Goatery, Piggery, Dairy and fisheries offer to achieve the project objective of income enhancement and nutrition improvement through climate-resilient production systems. To best benefit from value chain development and strengthening, the project will hire TsAs to take-up specific interventions in agriculture and allied sectors at the project locations. To strengthen these sectors, VCDC will facilitate in the following ways;

- i. Facilitate in **onboarding and monitoring of the TSA**, track activity progress, and actively participate in the methodology employed by the TSA for implementation
 - ii. Identify captive market opportunities and **facilitate forward market linkages** and purchase assurances
 - iii. Facilitate in development of knowledge modules for encouraging FPOs to diversify into participating in the value chain of poultry, goatery, piggery, dairy and fisheries
 - iv. Support in developing value chains for selected commodities in agriculture, horticulture and MFP
 - v. Facilitate the TSA in carrying out a training need assessment among various actors within the value chains. Further, the VCDC will layout the

areas of skill-building and support the TSA to develop the training modules and ensure its delivery

(d) Policy Advocacy for FPOs:

- i. An enabling ecosystem needs to be created to facilitate the emergence of robust FPOs with the integration of multiple stakeholders, for which the **project will conduct 2 FPO summits. VCDC will support the SPM-VCD in implementation of these FPO summits, including planning, promoting stakeholder participation, PR, documentation of finding/learning, develop policy recommendations for the state government or the GoI, and initiate follow-up steps towards closing action points of these FPO summits**
- ii. The VCDC will facilitate in **development of learning modules** on successful FPO business models and best practices across the country. These learning modules shall be short bite-sized learnings in poster form, short videos, folk drama recordings, etc. so that they can be sent over social media and promote wide reach. The documentation team may have to travel to different place across the country in doing this exercise

(e) Marketing, forward linkages, and partnerships:

The project will take-up various initiatives to facilitate forward market linkages for the project beneficiaries and FPOs, such as; **purchase assurances, Public-Private Partnerships (PPP), Public-Private Community Partnerships (PPCP), Contract farming agreements, OEM arrangements, etc.** The initiatives will include the following;

- i. Investor Summit
- ii. State-level Buyer-Seller Meet
- iii. District level Buyer-Seller Meet / Krishi Mela
- iv. Promote participation of Value Chain Actors' in trade-fairs
- v. Develop branding and packaging strategy and collaterals
- vi. Develop tools and platforms of market intelligence

To deliver the about listed initiates, VCDC will facilitate the project in the following ways

- i. VCDC will **facilitate the SPM-VCD in planning, implementation, and onboarding of the TSAs** for conducting these events. **The VCDC will also support in promoting stakeholder/investor participation, PR, building a database of leads, post-event follow-up, query resolution, connecting sellers to buyers, market scanning, facilitate in MoU signing, develop an event calendar, liaison with other state departments for facilitating convergence opportunities for the prospective investors/buyers/partners/institutions/etc., and document the findings/experiences of engaging with investors/partners**
- ii. Market Intelligence: The VCDC facilitate in on-boarding of an TSA to develop and manage platforms that will constantly update market information for the commodities and products from agriculture, horticulture, livestock, fisheries, sericulture, agroforestry etc. The information will cover news about trends, product competitor and customers, monitoring, gathered and analyzed specifically for accurate and informed decision-making in determining strategy in areas such as market opportunity, market penetration strategy, and market development. Market intelligence includes the process of gathering data from all possible information sources - news websites, company websites, secondary data sources, social media, RSS feeds, etc.
- iii. Support in **enabling contract farming, purchase assurance, institutional buying arrangements, market access, direct marketing**
- iv. Selection and on-boarding of the field staff at district and block level for marketing and value chain development
- v. Support SPM-VCD in execution of the contract farming, purchase assurances and direct marketing

(f) Building product competitiveness for high-value markets: The project envisions to support the state with enabling certification and accreditations of its commodities, products, and processes.

- i. In doing so, **the VCDC will document the certifications that are required for the prioritized commodities** and its products with the idea of accessing high-value markets like Export, organic, institutional, etc.
- ii. VCDC will facilitate the project to lay out the path for transformation of the state's capacities and initiate consultations with technical knowledge centers within the state (like IGKV, CGCOST, etc.) for up-gradation and establishment of testing laboratories

Procurement of TSA:

Given the complex structure of deliverables, VCDC will require specialized knowledge of market developments, stakeholder engagement, and value chain realization. The project may hire a Technical Service Agency (TSA) who shall be on-boarded as per the procurement guidelines of the project. This TSAs may include relevant line departments, autonomous organizations under State/Central governments, Government Institutes/Research Bodies, private agencies, and Voluntary Organizations (VOs). However, prior experience of working on similar assignments shall be treated paramount while awarding this assignment to the Technical Service Agency. The Terms of Reference (ToR) for the Value Chain Development Cell (VCDC) has been prepared and provided in **Annexure-xx**.

5.2.4.2. *Market Intelligence*

Market information and intelligence are crucial to enable farmers and traders to make informed decisions about what to grow, when to harvest, to which markets produce should be sent, and whether to store it or not. The most important marketing intelligence need of the farmer is price intelligence. Most of the farmers today still lack a good understanding and capacity to use market intelligence in guiding their production and marketing decisions.

All the Indian states depend on interstate trade for major agricultural and horticultural commodities. Hence dissemination of market information (demand, production and prices) plays a vital role in the functioning of the whole market, by harmonizing the competitive marketing process. By helping ensure that produce goes to markets where there is a demand for it, it shortens marketing channels and cuts down on transport costs. It helps to ensure that each marketing transaction is a fair one, and that all participants share the risks and benefits.

Recent advances in information technology are making it more feasible to provide farmers with the marketing information they need. However, farmers may not benefit from sophisticated facilities, if the system is poorly managed or not designed for their needs. It is not enough for marketing information to be collected; it must also be disseminated in a form accessible to farmers and adopted to their needs. In India existing agricultural market information services frequently fall short in one or more areas. Though farm related information has been provided by the Radio, TV and Newspapers, there was no mechanism to analyze, interpret and convert this vast volume of information into simple, comprehensible trade intelligence. This calls for a farmer friendly, easily accessible market intelligence system.

Market Information vs Market Intelligence: Market Intelligence is a process of giving you insights into what might happen soon. This process requires that we go from market data to information and then to market intelligence. Here is a basic example:

- **Data** - Prices for our products have dropped by 5 percent
- **Information** - New offshore facilities have lower labor costs
- **Intelligence** - Our key competitor is about to acquire a facility in India that will increase storage facility for future sale in the market that will cater higher profits

Intelligence differs from information since it requires some form of analysis. The purpose of this analysis is to derive some meaning from the piles of data and information. Market Information and intelligence are crucial to enable farmers and traders to make informed decisions about;

- What to grow
- When to harvest
- Where to markets the produce
- Whether to store it or not

Market Intelligence should not simply present the facts, declaring what we found; but instead make a statement with confidence that what is about to happen in near future. Market Intelligence allows us to remain competitive by improving our strategic decisions and this leads to better performance against our competitors.

Market Intelligence does not chase down all the facts but gets enough information to draw a reasonable conclusion for immediate action. The most important marketing intelligence need of the farmer is price intelligence. Many of the programs of state and central governments do not have a component of Market Intelligence which finally leads to realization of lower net prices by farmers. The poor understanding and use of market intelligence is the result of various factors including:

- Limited availability of market intelligence
- Poor access to relevant market information
- Limited dissemination of existing information to farmers and entrepreneurs.
- Lack of price forecasting system
- Limited capacity to understand and use market intelligence.

The main purpose of Agricultural Marketing Information System (AMIS) is to disseminate accurate and timely marketing information to support in marketing decision making and marketing efforts of entrepreneurs, farmers, government, development organizations, academicians, and researchers.

Agricultural Market Information System (AMIS) helps in ensuring that produce goes to markets where there is a demand for it. It shortens marketing channels and cuts down on transport costs and helps ensure that each marketing transaction is a fair one, and that all participants share the risks and benefits. However, this does not happen if marketing information is distributed unequally, as is generally the case when many small-scale farmers in India are selling to a relatively few large-scale dealers. The farmers then end up bearing the greater part of the risk, while the dealers end up with the greater part of the profits. Farmers must be able to seek out and compare the information available for different outlets if they are to sell to best advantage. Price information is less useful if there is only a single market outlet, or if farmers are price takers rather than price seekers. Where there is a very wide gap between the farm gate price and the price paid in wholesale markets and by consumers, marketing information can help narrow the gap.

The Ideal Agricultural Marketing Information System (AMIS) should be Responsible for

- Sourcing all the market data/information being collected by various agencies
- Processing and analyzing such data/information to turn it into useable knowledge; and
- Developing mechanisms/systems for information/knowledge dissemination through various media such as radio, tv, newsletters, bulletins, and websites.

Project Intervention: The project intends to develop a robust market intelligence platform which shall further the projects value chain development initiatives. The platform is expected to be in line with the expectation described above in this section.

Partnerships: Development of such as platform will require specialized technical resources having rich experience and knowledge of developing an AMIS. For this purpose, the project will form partnerships with such agencies having their own AMIS platform and willing to work on a partnership model. Partnering with over an agency brings mutual interest and hence provide a sustainable

5.2.4.3. *Building product competitiveness for high-value markets*

The project envisions to support the state with enabling certification and accreditations of its commodities, products and processes. The idea is to setup/upgrade testing facilities for certification of products and commodities to conform to standards required for selling in high-value markets, like exports. Also, other similar interventions which result in providing products and commodities of the state secure a competitive edge in high-value markets are **developing traceability protocols and attaching Geographical Indicators.**

The project will assess opportunities for taking up such activities and arrive at a decision basis the benefit analysis that can be done along with the IVCDSS. Further provision could be made to support the existing accreditation and certification agencies to upgrade the infrastructure. Detailed study would be carried out to assess the status of the Accreditation and Certification agencies present in the state and identify the gap. Thus, based on the study detailed plan would be designed to meet the gaps and develop a state of art accreditation and certification set-up in the state. Some examples of testing facilities are listed below;

- Food testing laboratories setup in conformance to APEDA standards
- Laboratories for testing the quality of silk and handloom being produced by in the state. Tests like sweat test, color test, iron test, etc could be carried out

5.2.4.4. *Access to direct and retail markets*

Directly marketing farm products to consumers has been growing as an accepted way of selling since the time BigBasket first started doing that in 2011. One of the most popular examples of direct marketing channels in Chhattisgarh context include the farmers markets which have been promoted by the Mandi Board. Farmers markets are organized markets where farmers can directly sell their produce to end consumers.

Other forms of retail that the project will attempt to develop are;

- **On-Farm retail markets:** An opportunity for urban dwellers to engage directly with the farmers at their farm and make their purchases
- **Roadside Stand:** This is already a widely used means of selling, however learnings from nearby states has been that having a standardized roll-out can provide better results
- **eRetail:** With better access to technology, ecommerce has today become an accepted medium of markets. The project will certainly explore opportunities to provide online presence to Chhattisgarh's produce

The VCDC will develop such innovative models that the project may pilot.

5.2.4.5. *Phasing in Strategy*

Activity	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
Linking FPOs to profitable market/facilitation for e-retail/state level federation FPOs	Lumpsum	-	-	0.25	0.25	0.25	0.25	1
Value Chain Development Cell	per year	0.17	0.17	0.17	0.17	0.17	0.17	1
Market Intelligence platform partnership	lumpsum	-	0.25	0.25	0.25	0.25	-	1
Traceability, GI, establishment and upgradation of testing facilities, organic certification	lumpsum	-	0.20	0.20	0.20	0.20	0.20	1

5.2.4.6. *Cost Table*

S N	Activity	Unit	Quantity	Unit Cost (INR)	Total (INR in million)	Total (US\$ in million)
1	Linking FPOs to profitable market/facilitation for e-retail/state level federation FPOs	Lumpsum	1	33000000	33	0.45
2	Value Chain Development Cell	Per Year	1	120000000	120	1.64
3	Market Intelligence platform partnership	Lumpsum	1	25000000	25	0.34
4	Traceability, GI, establishment and upgradation of testing facilities, organic certification	Lumpsum	1	50000000	50	0.68

6. Component 4- Covid-19 Economic Recovery Response

COVID-19 pandemic forced about 400,000 migrant labourers to return to their villages from their place of work outside the State¹⁵⁰. Having lost their livelihood, most of them aspire to remain in the villages, as job opportunities are unlikely to bounce back to normal under current depressed economic situation. Several surveys indicate that as high as 25% of these returnee migrants want to stay back in their villages, and the rural joblessness situation is likely to aggravate. Particularly in the remote tribal areas, the situation has hit the household income badly, as many of them were hugely dependent on remittances, collection of Minor Forest Produce and rainfed agriculture. Though MGNREGS and the newly launched *Garib Kalyan Rojgar Yojana* will ease the pressure on rural jobs search, the need for creating more income and job opportunity around both farm and non-farm activities at the local level would be the need of the hour¹⁵¹. Lack of income and cash liquidity also may negatively affect the upcoming agriculture season as farmers may find it difficult to buy inputs and services. Further, with weakening household income, the access to quality nutritious food could drastically reduce thus impacting the vulnerable segments of the community including women and children.

The COVID Economic Recovery Response Component (CEERC) activities aim to mitigate the food, and income shocks and reduce vulnerability caused by the COVID pandemic, as well as promote faster economic recovery, among the communities, returnee workers and households in the project areas. The component will stabilize and restore local food supply and production as well as stabilize and secure livelihoods and income opportunities.

Gram panchayats with higher influx of returnee labor, within the targeted CHIRAAG blocks will be prioritized for employment generating investments on land and water infrastructure. This will only supplement the existing government efforts but will also create sustainable infrastructure for the project as identified by the respective *Gauthan* Committee. To restore agricultural production activities and recapitalize the households for their working capital requirements, farmers would be supported with basic agriculture input/production kits. Landless households would also be supported with livestock-based activities to augment their reduced income. Households and village community would be supported to re-establish their vegetable patches and kitchen gardens and restore their year-round supply of food and vegetables from their own backyard..

Key investments under this component includes:

- A. Livelihoods restoration and community based natural resource management:
 1. Restoring Livelihoods and supporting employment generation: About 300 Gauthans would be supported as centres for reskilling and entrepreneurship promotion among the returnee labor, youth, and vulnerable households. This will include both off farm and non-farm entrepreneurial activities aiming creation of short term work opportunities and restoring local livelihoods through entrepreneurship
 2. Minikit distribution – Agriculture: About 80,000 farmers in the project areas will be supported with one time agriculture input kit comprising of critical inputs like seeds, fertilizer etc.
 3. Minikit distribution – Horticulture: About 20,000 farmers in the project areas will be supported with one time agriculture input kit comprising of critical inputs like seeds, fertilizer etc.
 4. Setting-up entrepreneurship based Custom Hiring Centre: About 35 custom hiring centres will be set up following an entrepreneurship approach.
 5. Goat Breeding Farm – Entrepreneurship Development: About 300 small village level goat breeding farm enterprises will be promoted.
 6. Community Based Natural Resource Management (CBNRM): Daily wage generating land and water based activities will be promoted to create income opportunities for the most vulnerable sections in the targeted rural areas.
 7. Enhancing Water Availability (support to individuals) - tube well connection: About 20,000 farmers will be supported with small irrigation devices.
 8. Nutrition enhancement through accelerated development of individual and community badi
 1. Individual badi development: About 35,000 households will be supported for badi

¹⁵⁰Stakeholder consultations

¹⁵¹<https://iwwage.org/wp-content/uploads/2020/06/Voices-from-the-Field-compressed.pdf>

development.

2. Community badi: At least 10 community badi's will be promoted on village common lands. Besides local nutrition security this will create income opportunities for the most vulnerable sections of the community.

Communication and awareness generation: Awareness generation on safety/hygiene practices to prevent COVID-19 outbreaks. Communication infrastructure, products and campaigns that build awareness and capacity among the targeted communities on safety and hygiene practices in the context of the ongoing pandemic.

6.3. Livelihood Restoration through Entrepreneurship and reskilling

The unemployment rate in Chhattisgarh in June 2020 was 14.2%, an all-time high since January 2016¹⁵². Multiple studies have quoted that the unemployment rate has increased due to COVID-19, further the state has been facing challenge of reverse migration in the rural areas, where about 4 lakh population has returned back to their homes due to COVID-19 pandemic. The lockdown and fatality due to COVID 19 has crippled the economy, and the situation has worsened due to the loss jobs for labours in the rural areas. The rural economy has taken a hit in multiple ways, firstly the farmers and daily wage worked, migrant labourer are affected due to loss of livelihoods, further the farmers are not able to sell their produce in the market, which has reduced the household income, further due to low income the rural poor is not able to invest into food and education, which has posed a threat of food security.

Amid these challenges the Government of Chhattisgarh has proactively implemented *Godhan Nyay Yojana*, to kindle the entrepreneurial spirit of the rural poor and earn additional income through vermi-composting. There is a need for similar models to revive the rural economy and generate employment in the rural areas. The Gothan centres developed by the Government could work as a robust platform for building these models of economic development.

The CHIRAAG project would augment a range of livelihood models to generate employment and additional income to rejuvenate the rural economy and especially focus on improving the economic conditions of migrant labourers and farmers. The project envisages to provide support to the farmers and migrant labourers through entrepreneurship-based livelihood. The component would establish the primary and secondary processing centres, custom hiring centres, goat breeding farms at/around the Gothans to employ rural migrants, generating employment and supporting farmers with value addition and input support for income enhancement. It would support the farmers with quality inputs for ensuring agriculture sustainability in the rural areas. Further it is being proposed to enhance irrigation support and develop community based Natural Resource Management structures, this will provide necessary impetus to the farming.

Following are the key objectives of this sub-component

- To bring immediate focus on agro-entrepreneurship based models for livelihood restoration
- To provide new livelihood opportunities to the farmers and migrant labourers in the project target areas
- To support upgradation and diversification of livelihood activity for target beneficiaries
- To support localization of agro-based supply chain to promote rural economy
- To upgrade the post-harvest primary value addition for better price realisation in the market
- To generate additional livelihood for landless agriculture labour through construction of Community Based Natural Resource Management activity

The entrepreneurial activities would include primary or secondary processing units viz., mini dal/rice mill, oil mill, flour mill, minor millet processing units etc. These units would be established on a PPCP (public private community partnership) mode, the project would fund the fixed cost and initial working capital for unit establishment, it would be established on a public land or Gauthan centre. Further the community/individual entrepreneur would invest in managing the operations of the unit. The idea is to establish a community-based, community-driven livelihood model for generating employment and providing additional income opportunity in the rural areas.

¹⁵² https://unemploymentinindia.cmie.com/kommon/bin/sr.php?kall=wsttimeseries&index_code=050050000000&dtype=total

A. Implementation Plan for CERRC activities

i. Selection of villages

The CERR component entails supporting the communities which are worst hit by the impact of COVID-19 pandemic and also support the migrants, who had to come back to their homes due to loss of livelihood. The CERR component would target and prioritize such population and their families and provide necessary support for livelihood regeneration. Though the returning migrants would be the highest priority beneficiary for the CERR component the project would also cover the SC, ST communities, women, small and marginal farmers who have been adversely affected by the pandemic. The villages in the project Blocks, having influx of the migrants will be prioritised for implementation of CERRC. The data from the Labour Department, which has been tracking the number of returning migrants in the state will be used to shortlist the villages in the project blocks.

The exercise would be done by the SPM-Food & Nutrition Supportive Agriculture and SPM-M&E. Support of IGKV will be also taken in identification of CERR implementation areas.

vii. Selection of the Villages and Beneficiary

For CERRM the 300 villages/Gauthans could be shortlisted based on the following -

1. Data from labour department
2. Consulting District Collectors
3. Proposal prepared by the DPM based on a pre-determined criteria to be suggested by SPMU (the proposal needs to be cleared by the District Collector)

The farmers/beneficiary households could be selected through consulting the Gauthan Committee, Gram Sabha. The REAO can take lead and prepare a list of beneficiaries in consultation with GP/GC and submit a proposal to BPM. BPM after review can submit it to DPM for approval

The project envisions to support the migrant labourers, landless poor and farmers, who are severely affected by the pandemic.

During the rapid rural appraisal the REAO would mobilize the community to identify the suitable entrepreneurial activities to be implemented in the village level. At the same time the TSA and the CC would facilitate the discussion within the community with regard to the selection of the beneficiaries who could take-up these entrepreneurial activities.

The benefits would be availed by the group or individuals. These individuals would apply to the Gauthan committee for availing the benefit. The committee would prioritize the beneficiary based on following criteria:

- Migrant labour
- Schedule caste or Schedule tribe
- Women
- Small and marginal farmers

This is an indicative criteria list, further the committee would also assess the potential and the authenticity of the applicant with respect to operationalizing the livelihood unit. There could be a group with minimum 3 beneficiaries and maximum 10 beneficiaries, for undertaking an entrepreneurial activity. The specific number may vary based on the type of activity selected and number of human resources required and interested individuals in the village. However, the number shall not exceed 10 else it would become difficult to manage such a large group for a single entrepreneurial activity. Only one member from a household will be eligible under CERRC and under no situation one household can avail/engage in more than one CERRC activity.

i. Site selection

Thought the entrepreneurial activities would be implemented by the individual beneficiaries. The model would be based on the public and community partnership. The group of individual beneficiaries would invest their time and necessary capital in the project, however, at the same time the project would

provide the critical equipment. Further the project would facilitate land/area for the establishment of the physical infrastructure for the entrepreneurial activity. convergence with the concerned government department for providing public

At the time of Rapid Rural Appraisal, the TSA would also facilitate the discussion within the community through Gram Sabha to identify nearby public site where the selected entrepreneurial activity could be implemented. For example, Goat breeding farm would require a large space, the community shall identify if the breeding farm should identify a suitable place for the establishment of the goat breeding farm.

ii. Training and Capacity Building

Once the Gothan committee has identified the beneficiary the project would provide the necessary training and handholding support to the beneficiary for the successful initiation of the livelihood unit and sustainable management.

. Further the beneficiaries would also receive necessary training on the entrepreneurship development and managing the livelihood activity.

B. Implementation process

- The SPM Food & Nutrition Supportive Agriculture, APM – Agriculture, Horticulture, Livestock, Fisheries would prepare a list of activities which could be taken up by the individual or group of beneficiaries in the selected 300 villages. The SPM and APMs will take the support of DPMU .
- The second stage would be the Regional Diagnostic, where IGKV would categorize the activities based on the agro-ecological suitability.
- This would be followed by the Rapid Rural Assessment by the TSA, where TSA and CC or the local agriculture department staff would mobilize the community through Gram Sabha. At this stage the community would select the preferable entrepreneurial activities to be implemented in the village. The list would be formed for all the 300 villages. Further at this stage the community would also decide the beneficiaries and the site for establishment of the infrastructure for the entrepreneurial activity.
- The TSA for CVDP, VCDC, and field functionary and CC would support the selected beneficiaries for preparation of the business plan for the selected entrepreneurial activity

C. Project Support

Establishing the micro-enterprise

The activity would be implemented in the 300 selected villages. Gothan would be the anchor institution for developing and establishing the micro-enterprise. The project has provisioned INR 20 Lakh for each Gothan. The Gothan may select activities approved by the project. The indicative list of the activities that could be implemented under the project activity are (this is an indicative list, it would be updated by the project team and SPM IFS):

Training and Capacity Building

Training support would be provided by the project to the beneficiaries for the sustainable operationalization of the entrepreneurial activity in the village. The training would be provided by the CC in a ToT mode.

D. Phasing in Strategy

Year	Period	No of Cadre Training	% of HH covered
First	2020-21	100	33.33%
Second	2021-22	300	66.67%
Third	2022-23	-	-
Fourth	2023-24	-	-
Fifth	2024-25	-	-
Sixth	2025-26	-	-
Total	-	-	-

Note: ** Number of district and blocks and its phasing in would be decided after the finalization of the target villages

E. Cost Table

S.NO.	INTERVENTION	Unit Cost (INR)	BENEFIT
1	Grant support for establishment of entrepreneurial activity	25,00,000/-	Foster livelihood-based entrepreneurship in the village, generating additional employment opportunity for the migrant labourers and other beneficiaries

Minikit Distribution (Agriculture and Horticulture)

farmers Recently owing to the COVID-19 the small and marginal farmers have been drastically impacted due to nation-wide lockdown during 23 March 2020, which lasted for months and in multiple phases. The lockdown led to bifold impact on the farmers from the perspective of market and inputs. Farmers also struggled to sell their produce in the market due to disrupted supply chain. This disruption also impacted the input supply severely. Many farmers faced the impediments in accessing quality inputs at affordable cost. The lack of access to quality inputs has significantly impacted the farming in some cases it also delayed the sowing. Hence addressing the lack of access to quality inputs is an urgent requirement.

CERRM Objective:

- Provide assured and quality input support, in the form of seeds/planting material, to the vulnerable small and marginal farmers
- Enhance production and productivity through quality seeds
- Enable income enhancement for the farmers, assuring income security

A. Implementation plan

- This activity will be implemented in the 300 villages, to be selected from the 14 CHIRAAG blocks. The villages and the beneficiaries would be selected based on parameters as discussed earlier. For speedy implementation the SPMU can constitute a 'CERRM committee' with members drawn from SPMU, DPMU and IGKV. The committee after initial consultation through virtual meetings can suggest few options based on district level demands of 'minikits'

i. Procurement of Minikits

Based on the final VDPs, the SPMU team – SPM Food & Nutrition Supportive Agriculture, Agriculture, Horticulture, TSA CVDP would prepare a consolidated list of seed input requirement in the selected 300 villages. Further based on the demand the SPM Food & Nutrition Supportive Agriculture would place the procurement request to the Beej Nigam. The entire procurement would be done by the Beej Nigam and distribution would be made at the village level to the Gothan committee. The process of Beej Nigam procurement is detailed in the procurement chapter.

ii. Distribution of Minikits and monitoring

Gothan committee would act as an anchor point for the distribution of the Minikits to the target population in the selected 300 villages. During the RRA a final Minikit Demand for the village/Gothan would be prepared by the TSA/ local agriculture staff. The demand list would have the details of the beneficiary farmer, seed and variety demanded for minikit. Post-procurement, Beej Nigam would ensure that the minikits reach the particular Gothans based on their demand.

B. Implementation process

- The IGKV would conduct the Regional Diagnostic and submit the report to the SPMIFS
- The APM Agriculture and Horticulture would pull out the information from the Regional diagnostic with respect to the minikits and prepare and block-wise list of the suitable crops and their varieties

- Further the APMs would provide the list to the CVDP TSA, which would conduct RRA in field
- The DPM and BPM would support the TSA field functionaries for the Rapid Rural Assessment
- The TSA would prepare a final village-wise list for the demand of the minikits
- The demand would be verified by the DPM, and a consolidated list would be submitted to the SPM Food & Nutrition Supportive Agriculture
- The APM Agriculture and Horticulture would finalize the consolidated list of the minikits for procurement
- SPM Food & Nutrition Supportive Agriculture would place order to the Beej Nigam for the procurement of the minikits
- Beej Nigam would undertake minikit procurement following Bank system
- The Vendor would be responsible to deliver the minikits up to the district level, the DPM would transfer the minikits to the respective Gothans, based on the minikit demand list

C. Project Support

The project apart from supply of the minikit would also provide technical trainings and handholding support to the community members in utilising the minikit properly

D. Phasing in Strategy

Activity	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
Minikit distribution - agriculture	Farmers	50,000	30,000	-	-	-	-	80,000
Minikit distribution - horticulture	Farmers	14,000	6,000	-	-	-	-	20,000

E. Cost Table

SN	Activity	Unit	Quantity	Unit Cost (INR)	Total (INR in million)	Total (US\$ in million)
1	Minikit distribution - agriculture	Farmers	80,000	995	77.42	1.09
2	Minikit distribution - horticulture	Farmers	20,000	1250	24.32	0.34

Setting-up entrepreneurship based Custom Hiring Centre

As the pandemic has disrupted the agriculture supply chain and hampered the production and productivity, establishment of CHC would support the target communities in minimizing the cost of production.

At village level custom hiring centres will be set up to promote mechanization services to the fellow farmers in the villages at a nominal service cost. A range of small agri equipment such as power tiller, harrower, reaper, paddy transplanter, seed cum fertilizer dibbler etc. or a range of equipment for agriculture, horticulture, fisheries and livestock activities will be provided to an eligible individual/group entrepreneur. The eligibility criteria of the entrepreneur could include existing small progressive farmer of the village/landless farmer, owner of few critical agri-implements and prior experience of renting agri-equipment, driving/mechanical skills, returnee migrant, entrepreneurship abilities, inclination and capacity to arrange partial contribution etc. The CHC model in the local context will be developed, to to develop local entrepreneurship within the target village and generatelocal employment and income opportunities.

. Gothan committee would help in identification of the individual/group interested in establishing the CHC. The critical equipment of the CHC would be centrally procured and supplied by the project to the entrepreneur. The project staff would provide the necessary handholding support to the entrepreneurs

for the establishment of the CHC. Further the entrepreneur would be responsible to prepare a business plan of CHC and contribute the working capital.

A. Implementation Plan

i.Regional Diagnostic

ii.After the identification of 300 villages for CERRC, the number of CHC could be proportionately allotted to the CHIRAAG Blocks. The BPMs in those Blocks can invite applications from the GPs. The REAO can support the GPs to identify the eligible entrepreneurs in consultation with the GPs.

iii.Establishment of the Model

The TSA/ local agriculture staff would support the Gothan Committee in preparing a list of beneficiaries and submit it to the BPM, who would validate the requisition and submit the to DPM. The DPM would verify the requisitions on the sample basis and submit the consolidated list to the SPM Food & Nutrition Supportive Agriculture

Further the CVDP TSA and CC would support the entrepreneur in developing the business plan for the establishment of the CHC.

The business plan request would also be submitted to the SPM Food & Nutrition Supportive Agriculture through the Gothan committee. The Gothan committee would ensure that the rental rate of the machinery are affordable.

B. Implementation Process

The detailed process of identifying the 300 villages for CERRC has been stated above. This activity will be implemented only in these 300 villages. The process of establishing 35 CHCs within the selected 300 villages for CERRC component, would be done on a priority basis. The catchment area of a CHC will be 2-3 adjacent villages, hence within a cluster of 2-3 villages not more than one CHC will be allowed.

The SPM-Food & Nutrition Supportive Agriculture will prepare a short note on the CHC model, specifying therein the selection criteria of the beneficiary entrepreneur, scheme details, selection process, procurement process, monitoring etc. and include it in the CERRC manual.

C. Project Support

Procurement of equipments:

The project has provisioned for a fund of INR 10 Lakh for the establishment of the CHC. About 35 CHC will be established within 300 villages to be identified for CERRC.SPMU will identify the list of equipments and arrange these for the entrepreneurs through centralised procurement of the small machinery and tools.

Handholding support

The project would provide handholding support to the entrepreneurs. The TSA –CVDP and CC would support the beneficiaries to develop the business plan.

D. Phasing in Strategy

Activity	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
Setting-up entrepreneurship based Custom Hiring Centre	Centers	35	-	-	-	-	-	35

E. Cost Table

SN	Activity	Unit	Quantity	Unit Cost (INR)	Total (INR in million)	Total (US\$ in million)
1	Setting-up entrepreneurship based Custom Hiring Centre	Centers	35	10,00,000	34.04	0.48

Goat Breeding Farm – Entrepreneurship Development

The project locations are concentrated in the Bastar Plateau, which is a tribal belt of the state. It is being observed and from multiple stakeholder interactions it has been identified that tribal communities are interested in Goatry and piggery activity. Though there is limited market for piggery, goat rearing is a model which has promising potential in the tribal belt. Tribal community take up the activity for self-consumption as well as economic gain. Thus, the project proposes to develop entrepreneurs who are willing to take up the activity of Goat Breeding Farm. The project would provide the input support of 10+1 breeding stock through the convergence with the state Direct Benefit Transfer scheme. The project has provisioned for 1.5 lakh of budget per breeding farm. The beneficiary will be required to invest in the development of the infrastructure required – shed, and rearing of the stock.

A. Implementation Plan

i.Regional Diagnostic

IGKV would identify the specific geographies for promoting the goat breeding farms. Further it would develop a list of breed suitable for the particular agro-ecological condition and other climatic variables of the project location. The list would be leveraged by the project in procurement of the right quality of breed.

ii.Rapid Rural Assessment

During the Rapid Rural Assessment the CVDP TSA would mobilize the community to take-up the goat breeding farm activity for livelihood regeneration. The TSA would include the planning of Goatry development in the Village Development Plan. Though the activity would be implemented at the LG level, however with respect to the CRR, in the case where LG formation has not happened, the model would be implemented through Gothan Committee. The TSA would facilitate the Gothan Committee to identify the entrepreneurs for the uptake of the goat breeding activity.

iii. Establishment of the Model

The CVDP TSA and VCDC TSA would support the entrepreneur in basic business plan development. The business plan would support the beneficiary in assessing the capital input required apart from the loan. The project staff- APM Livelihoods, Manager Livestock and Value Chain would support the entrepreneur in the procurement of the Goat breeding stock. Further the Goat Breeding TSA would be deployed by the project, which would support the beneficiary in rearing of the stock and market linkages.

B. Implementation Process

- The APM Livestock with the guidance of SPM Food & Nutrition Supportive Agriculture. will prepare a scheme on the Goat breeding farm development for implementation in the 300 villages, stating therein the selection criteria of the entrepreneur, selection process, procurement process of the goats, monitoring etc.
- Project would take support from the FARD which would support in finalizing the policy for goat breeding farm establishment, design and deliver training on effective goat breeding and management, support in establishing market linkages
- The CVDP TSA field functionaries and CC would support the Gothan Committee in identification of the entrepreneurs at the time of RRA
- Further the Gothan committee would submit the list of beneficiaries to the BPM, who would consolidate the list and submit tot the DPM
- The DPM would verify the applications on sample basis and submit the approved list of the beneficiaries to the SPM IFS

- Further the SPM Food & Nutrition Supportive Agriculture with assistance from APM-Livestock, would consolidate the demand and initiate the procurement of goats and supply of goats to the beneficiary through DPM Livestock. Further the TSA and the APM Livestock, CC would deliver the training to the beneficiaries on effective management of the goat breeding farm. Further detailed implementation plan and process, along with the beneficiary selection criteria and procurement process will be stated in the CERRC manual.

C. Project Support

The project has provisioned a fund of INR 1,50,000/- for each goat breeding farm. The project will procure the goats from the market and supply it to the identified beneficiary entrepreneurs.

D. Phasing in Strategy

Activity	Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
Goat Breeding Farm – Entrepreneurship Development	Entrepreneurs	300	-	-	-	-	-	300

E. Cost Table

SN	Activity	Unit	Quantity	Unit Cost (INR)	Total (INR in million)	Total (US\$ in million)
1	Goat Breeding Farm – Entrepreneurship Development	Entrepreneurs	300	1,50,000	43.77	0.62

Community-based Natural Resource Management

The state has observed significant influx of migrant labourers, due to loss of livelihoods. The economic and social implications of the pandemic is worse for the landless labourers and migrant labourers. The project envisions to identify villages having high number of migrant labourers, who have returned back home, in the project locations. Further the idea is to develop Community-based natural resource management models for these population. The construction of soil and water conservation structures would lead to employment generation through labour work. Further enhanced availability of water would enable improved productivity and enhance farm income.

Implementation Plan and Process

The activity would be implemented in priority in the 300 villages having high population of returning migrants. Creation of small hapas/ponds for rain water harvesting, small check dams on rivulets etc. on private and public lands will be planned in consultation with Gauthan committee.

The detailed implementation plan and process would be covered in the CERR Manual.

Enhancing Water Availability

The objective of the component is to provide enhanced irrigation support to the farmers. This shall stand in good stead for supporting the farmers with lifesaving irrigation and improve the productivity and enhance farm income.

Implementation Plan and Process

The activity would be implemented in priority in the 300 villages having high population of returning migrants.

The detailed implementation plan and process will be described in the CERR Manual.

Nutrition Enhancement through accelerated focus community and individual badi

COVID-19 pandemic has led to severe health implications and poor status of nutrition in women and children in the poor families renders them highly vulnerable to the infection. Even before Covid-19 became a global pandemic, 23% of the total population of children in Chhattisgarh under 5 years of age suffer from wasting, a condition characterized by low weight for height. Wasting is a strong indicator of acute food shortage and hence, nutrition deficiency. These children are at higher risk during this pandemic because of their low immune system, disruption in potential nutritional services and their dependency on parents for feed, care and support. Not only children, but women are too vulnerable to the nutrition crisis as disrupted food system and income loss has prevented their access to nutritious diet and services, including healthcare system of early detection and treatment of child wasting. Further, the state has 26.7% of women with low BMI in the age group of 15-49 years. Considering the caregiving responsibility of women, Covid-19 crisis has posed significant challenges to children's physical, emotional and psychological well-being. Though infant mortality rate has been decreasing continuously in Chhattisgarh from 79 IMR per 1000 live births in the year 2000 to 39 IMR in 2016, there is significant danger of losing these gains due to Covid-19 and its impact on health and food nutrition system.

The project will promote badi development in the identified 300 villages from the targeted project blocks . These badis will enhance local supplies of green vegetables thus supporting nutrition security of the tribal communities.

The project will promote Badi in both at individual household and Community levels. Under the CERRC component the activity would be implemented on priority in the 300 selected villages. Further the detailed implementation plan and process will be described in the CERRC manual .

7. Component 5- Project Management, Monitoring and Evaluation and Knowledge Management

7.1 Project Implementation Architecture

(a) Creation of appropriate institutional support structures to facilitate implementation of activities is central to the success of the project. As CHIRAAG is fundamentally anchored on strengthening the existing government programs and systems the institutional set-up would complement and converge with the government agencies. The idea is to leverage the institutional expertise of the government agencies and facilitate effective convergence, for seamless and successful implementation of the project. The institutional architecture entails 4 major stakeholders – Government Departments, Community Based Institutions, Panchayati Raj Institutions and Gothan Committee. **The nodal agency for CHIRAAG implementation is Department of Agriculture Farmer Welfare and Biotechnology (DoAB), it entails convergence among its 4 key directorates: Agriculture, Horticulture, Veterinary services, Fisheries.** Additionally, the *Beej Nigam* will act as the project implementation agency for additional procurement services.

(b) The project implementation structure would be **3-tiered, comprising of State, District, and Block level units**, Headed by a Project Director (PD), a State Project Management Unit (SPMU) would be established at the State level. Further, the project would facilitate setting-up of District Project Management Units (DPMUs) at the District level. At the Block level, Block Project Implementation Unit (BPIU) will be established. These institutions would be an extension of the current government set-up. Nominated government officers would be deputed, and a pool of Consultants from the open market would be hired to work dedicatedly for the implementation of CHIRAAG.

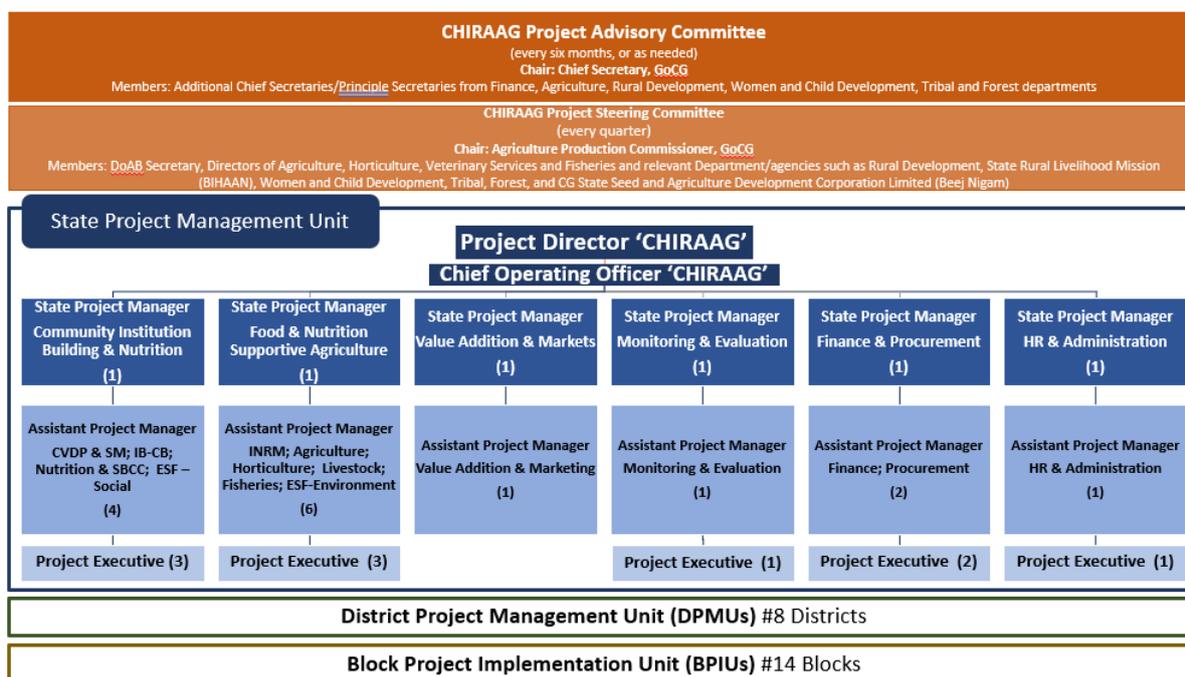
(c) These units would catalyse social mobilization, build community institutions, capacities and skills, spearhead livelihood and value chain interventions, and promote convergence and partnerships with stakeholders. These units would be staffed with professionally competent human

resources.

For effective project implementation, nominated officers of the key government Directorates namely Agriculture, Fisheries, Horticulture, Veterinary Services would be appointed on deputation basis to key positions of the SPMU, DPMU and BPIU levels. These resources will be deputed on a full-time basis to dedicatedly work for the CHIRAAG implementation. Policy decisions would be deliberated and discussed in the Project Steering Committee with the Project Director, CHIRAAG as the member secretary. At the state level, the Chief Operating Officer (COO) and other key technical resources would be hired from the market to provide their services towards project implementation.

Implementation Structure at State Level

Implementation structure of CHIRAAG will be deeply entrenched within the DoAB. The project envisages the creation of a support structure to serve as a backbone for delivering programme benefits. It envisages establishing an effective convergence among related Government departments, Civil Society Organizations, formal financial institutions, public and private sectors for farmer welfare and development. This calls for robust and dynamic learning organizations with qualified personnel and creation of multi-stakeholder governance structures comprising of representatives from agriculture and allied departments to work in collaboration with expert professionals. The DoAB would set up such governance and coordination structures to supervise the project activities.



7.3.4.7. Governance Structure at State Level

A high-level **Project Advisory Committee** (PAC), chaired by the Chief Secretary will provide project oversight and policy guidance for the project. The members of the PAC will include Additional Chief Secretaries/Principle Secretaries from Finance, Agriculture, Rural Development, Women and Child Development, Tribal and Forest departments. The committee will provide administrative, policy,

technical guidance and direction to the project implementation. The committee will meet every 6 months or as per the requirement.

A **Project Steering Committee (PSC)** would be constituted under the chairpersonship of the Agriculture Production Commissioner. The PSC will be responsible for approving and reviewing the project annual budgets, work plans, monitoring the overall physical and financial progress, and driving the inter-departmental coordination and convergence. The committee would also be responsible for overseeing the policy formulation for project implementation. The PSC members will include the Agriculture Production Commissioner, DoAB Secretary, and Directors of Agriculture, Horticulture, Veterinary Services, Fisheries and relevant department/agencies, i.e. Rural Development, State Rural Livelihood Mission (SRLM),¹⁵³ Women and Child Development, Tribal, Forest and *Beej Nigam*.

Table 2: Governance Structure and Function

Project Advisory Committee
<ul style="list-style-type: none"> • Chief Secretary – Chairperson • Additional Chief Secretaries/Principle Secretaries from Finance, Agriculture, Rural Development, Women and Child Development, Tribal and Forest departments
Functions:
<ul style="list-style-type: none"> • Providing overall vision for CHIRAAG • Providing direction and setting priorities for CHIRAAG • Policy guidance on poverty reduction, livelihoods enhancement of the poor, especially marginalized, tribal groups, women and PVTGs, nutrition security, value addition and market access • Review progress of activities and provide strategic support for program implementation
Project Steering Committee (PSC)
<ul style="list-style-type: none"> • Members include Agriculture Production Commissioner, DoAB Secretary, and Directors of Agriculture, Horticulture, Veterinary Services, Fisheries and relevant department/agencies, i.e. Rural Development, State Rural Livelihood Mission (SRLM),¹⁵⁴ Women and Child Development, Tribal, Forest and <i>Beej Nigam</i> • Convener - APC, DoAB • Co-convener - Project Director, CHIRAAG
Functions:
<ul style="list-style-type: none"> • Guiding and overseeing CHIRAAG implementation in the state • Providing direction and strategic support for project planning and implementation • Approving all annual plans • Approving overall human resource policies • Monitoring program implementation and achievement of performance • Redefining and reformulating project strategies based on emergent experience from project implementation • Coordinating with different government departments and agencies for seamless and effective implementation • Setting up accountability of the project on respective concerned government departments/agencies for successful convergence • Setting up the framework for convergence and resolving impediments • Representing the project at the state and national government level • Approving program budget as per the defined allocation criteria
The committee meeting would be convened once in every 6 months to appraise the project, sanction funds and approve project plans.

¹⁵³ Called BIHAAN locally.

¹⁵⁴ Called BIHAAN locally.

Operational Structure at State Level

A State Project Management Unit (SPMU), equipped with a pool of professional staff for management and co-ordination of activities and processes would create an enabling architecture for providing the required technical support for program implementation. Secretary, Agriculture department as Project Director, would head the SPMU, which will comprise a multi-disciplinary team of professionals. The PD, CHIRAAG will be assisted by a Chief Operating Officer (COO), who shall be recruited from the open market. SPMU would provide leadership to the whole project implementation and would create a facilitating environment for the performance of district and block level units. The main role of SPMU would be to establish and oversee structures and processes for:

- Spearheading evidence-based policy formulation
- Formulating the project design and implementation strategy
- Project/operations and financial management
- Planning and appraisal of the project activities
- Forge convergence and partnerships
- Knowledge management and communication
- Orchestrate project implementation and human resource management
- Capacity building and training of the project staff and other relevant stakeholders
- Monitoring, learning, evaluation and information management
- Technical assistance (ta) to districts in rolling out the project

Structure and Role:

The project at SPMU, DPMU and BPIU would be governed by a 'HR Guidelines and Manual', which will lay out the principles of staff management. The HR Guidelines and Manual will ensure optimal remunerations with rigorous performance-based accountabilities. The management of staff would be outcome oriented and the project will be setting up a result-based performance management system from the outset.

- SPMU would comprise of a multi-disciplinary team of experts in agriculture, horticulture, fisheries, veterinary, institutions building and capacity building, nutrition, social development, integrated farming systems, natural resource management, human resources, monitoring and evaluation, MIS, Value Chain Development and Marketing finance, procurement, and support staff, etc.
- Nominated officers of key government Directorates namely Agriculture, Fisheries, Horticulture, Veterinary Services would constitute some positions of the SPMU for example key State Project Managers (SPM) and key Assistant Project Managers (APM). These experts, with adequate experience in the relevant thematic areas, would be drawn from the departments on deputation basis with specific terms of reference.
- Specialized team/s of Technical Support Agencies (TSA) would be deployed at the SPMU level for providing the technical and consulting support to these experts.
- Value Chain Development Cell would be constituted at the state level, for establishing robust value chains within the state. The VCDC would be constituted by specialized professionals hired through a TSA as per the defined guidelines of the project.

Detailed Roles and Responsibilities:

Sr.	State Project Management Unit Resources
(A)	Project Director
	<ul style="list-style-type: none">• Lead CHIRAAG project implementation with support of Project management team at State, District and Block levels, under the guidance of Advisory and Executive committee and assisted by a COO• Planning, execution and monitoring of all project activities

	<ul style="list-style-type: none"> • Guiding the SPMU team in designing various policy framework, strategy to ensure rolling out of all organizational policies and systems across the state to deliver quality results • Guiding the DPMU and BPIUs for effective and efficient implementation of the CHIRAAG project activities • Facilitate convergence with government, non-government, private and public agencies for effective implementation of CHIRAAG • Lead effective coordination with the Collectors of the project Districts • Lead the coordination with DEA and World Bank and ensure participation in key meetings and timely submission of key reports/commissioning studies etc. • Represent CHIRAAG at state, national and international platforms • Present project reports to Project Steering Committee
(B)	Chief Operating Officer
	<ul style="list-style-type: none"> • Support the PD for effective and efficient project implementation including governance and monitoring • Leverage resource mobilization /human resource build and nurture effective sensitive support teams at various levels in the state • Arrange Capacity Building Support to the staff and Communities (members, leaders, cadres and institutions) at multiple levels in various ways • Facilitate in developing and fine-tuning program strategies for agriculture-based nutrition systems, value chain development behavioral change communication, marketing and linkages, social mobilization and institution building, financial inclusion and livelihoods based on learning from pilots • Lead the project team at the state and district levels to ensure attainment of envisaged results • Developing policies, guidelines and operational manuals for effective implementation support to district, block and panchayat level units • Approval of annual action plans for all the respective districts • Facilitate convergence with key government agencies • Institutionalization of partnerships with resource agencies, public and private sectors and with other stakeholders in various capacities • Facilitate in developing guidelines and protocols of institutional partnerships • Collect and analyse information both qualitative and quantitative for the quarterly and annual reports • Present progress report to the executive and governing committee • Represent CHIRAAG at state and national level • Effective management of all the partners, donors, and other stakeholders • Present regular reports to the PD and support him/her to present the reports to Project Steering Committee • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(C)	State Project Manager - Community Institution Building and Nutrition (CIBN)
	<ul style="list-style-type: none"> • Lead the domain on Social Mobilisation, Chiraag Village development planning, community institution development, capacity building of community and community resources, nutrition, as well as ensuring ESF • Lead project implementation activities in respective technical domain including planning and conceptualization of project activities, developing policies, and implementation strategies, prioritization of investments and preparation of annual action plans, resource mobilization including convergence, capacity building, TSA management and monitoring

	<ul style="list-style-type: none"> • Manage four Assistant Project Managers namely (a) CHIRAAG Village Development Plans & SM; (b) Institution Building and Capacity Building; (c) Nutrition & SBCC; and (d) Environment and Social Framework (ESF) – ‘Social’ • Advice, support and assist the project leadership i.e., COO and PD on project implementation activities, specifically for effective and efficient investments. • Render technical assistance and advice to district teams on resolving implementation problems • Design and facilitate Annual Action Plan development and appraisal • Ensuring effective convergence among multiple key stakeholders Build partnership with specific thematic sector resource agencies, academic institutions and research agencies • Building networking and partnership with various stakeholders, strategy and implementation plan, working with Government Organizations/NGOs • Play a lead role in cross regional knowledge sharing including learning and exposure visits, workshops and seminars and in producing knowledge products for the domain area • Development and creation of the teams in respective verticals for delivering results and outcomes for the theme in the State, District, Block level • Regular monitoring, preparation and presentation of regular project progress reports for key stakeholders • Present regular reports to the PD, COO and support them to present the reports to Project Steering Committee
(D)	Assistant Project Managers CHIRAAG Village Development Plans & SM
	<ul style="list-style-type: none"> • Primarily responsible for working along with the TSA and ensure social mobilisation and quality village development plans • Support the SPM - Community Institution Building and Nutrition (CIBN), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements • Roll out various required interventions as well as support the District team in program implementation and monitoring • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the District and Project teams • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert <p>Undertake field visits as required and conduct regular team meetings (virtual/physical)</p>
(E)	Assistant Project Managers Institution Building and Capacity Building
	<ul style="list-style-type: none"> • Primary responsibility is to work along with the TSAs to build capacity of the various community and building the institutions like LG-FPO-CRC-GC • Support the SPM - Community Institution Building and Nutrition (CIBN), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements

	<ul style="list-style-type: none"> • Roll out various required interventions as well as support the District team in program implementation and monitoring • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Support the SPM in designing the policy for institutional building of – Livelihood Groups, CHIRAAG Resource Committee • Support the SPM and work in tandem with the TSA for developing the training modules for the community-based institutions for training support • Regular monitoring of the community-based institutions • Regular monitoring and implementation support to the DPMU • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(F)	Assistant Project Manager Nutrition & Social Behavioural Change Communication
	<ul style="list-style-type: none"> • • Primary responsibility is to anchor the nutrition initiative including the SBCC one. • Support the SPM - Community Institution Building and Nutrition (CIBN), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements • Roll out various required interventions as well as support the District team in program implementation and monitoring • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Facilitate the training of the community on Nutrition Supportive Production Systems • Develop cookery books and other solutions for behavioural change and adaptation of the community • Contribute to the nutrition supportive agriculture production system strategy • On-board the TSA for designing BCC strategy and training modules • Regular monitoring and implementation support to the District and Project teams • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(G)	Assistant Project Manager Environment and Social Framework (ESF) – ‘Social’
	<ul style="list-style-type: none"> • Support the SPM in implementing the project as per social safeguard measures stated in the ESF and ESCP • Provide lead technical support to the other thematic domains for social safeguard requirements • Roll out various required social safeguard related interventions as well as support the District team in program implementation and monitoring as per ESF and ESCP

	<ul style="list-style-type: none"> • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports and ensure compliance to social safeguard measures • Support in determining the specialized strategy for program implementation in the tribal area • Work in tandem with the SPM for facilitating specialized training in the tribal areas • Work with Nutrition and SBCC team for designing SBCC suitable to the tribal context • Converge with program units and thematic areas to ensure social inclusion and adherence to the social safeguards • Set social indicators for the project and ensure these are achieved • Develop strategy for enhanced inclusion of PVTGs, tribal, and women • Develop platforms for democratic decision making and community engagement to enable social inclusion • Regular monitoring and implementation support to the District and Project teams as per the requirements of ESF and ESCP including capacity building measures • Provide specialized technical support in identification of best practise, piloting, documenting success and failures. Drafting specific guidelines for social safeguard related aspects and strategize for scaling up the best practices
(H)	State Project Manager -Food & Nutrition Supportive Agriculture
	<ul style="list-style-type: none"> • Lead project implementation activities in respective technical domain including planning and conceptualization of project activities, developing policies, and implementation strategies, prioritization of investments and preparation of annual action plans, resource mobilization including convergence, capacity building, TSA management and monitoring • Advice, support and assist the project leadership i.e., COO and PD on project implementation activities, specifically for effective and efficient investments. • Manage six Assistant Project Managers namely (a) Integrated Natural Resource Management; (b) Agriculture; (c) Horticulture; (d) Livestock; (e) Fisheries; and (f) ESF-Environment • Render technical assistance and advice to district teams on resolving implementation problems • Design and facilitate Annual Action Plan development and appraisal • Ensuring effective convergence among multiple key stakeholders Build partnership with specific thematic sector resource agencies, academic institutions and research agencies • Building networking and partnership with various stakeholders, strategy and implementation plan, working with Government Organizations/NGOs • • Play a lead role in cross regional knowledge sharing including learning and exposure visits, workshops and seminars and in producing knowledge products for the domain area • Development and creation of the teams in respective verticals for delivering results and outcomes for the theme in the State, District, Block level • Regular monitoring, preparation and presentation of regular project progress reports for key stakeholders • Present regular reports to the PD, COO and support them in presenting the reports to Project Steering Committee • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)

(I)	APM Integrated Natural Resource Management
	<ul style="list-style-type: none"> • Provide technical lead to the INRM agenda in the project. Work with the TSA to develop the strategy and monitor quality of implementation • Support the SPM - Food & Nutrition Supportive Agriculture (FNSEA), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements • Roll out various required interventions as well as support the District team in program implementation and monitoring • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the District and Project teams • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(J)	APM Agriculture
	<ul style="list-style-type: none"> • Responsible for agriculture related activity in the project including IFS and seed village development • Support the SPM - Food & Nutrition Supportive Agriculture (FNSEA), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements • Roll out various required interventions as well as support the District team in program implementation and monitoring • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the District and Project teams • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(K)	APM Horticulture
	<ul style="list-style-type: none"> • Responsible for all horticulture related activity in the project including seed and nursery development • Support the SPM - Food & Nutrition Supportive Agriculture (FNSEA), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements • Roll out various required interventions as well as support the District team in program implementation and monitoring

	<ul style="list-style-type: none"> • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the District and Project teams • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(L)	APM Livestock
	<ul style="list-style-type: none"> • Responsible for all livestock related activities in the project (goat rearing, poultry, piggery) • Support the SPM - Food & Nutrition Supportive Agriculture (FNSA), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements • Roll out various required interventions as well as support the District team in program implementation and monitoring • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the District and Project teams • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(M)	APM Fisheries
	<ul style="list-style-type: none"> • Responsible for all fishery related activities in the project • Support the SPM - Food & Nutrition Supportive Agriculture (FNSA), in program design, policy formulation designing, and developing strategic implementation plan related to interventions, TSA management • Provide technical lead and support in sync with other thematic domain requirements • Roll out various required interventions as well as support the District team in program implementation and monitoring • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the District and Project teams • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(N)	APM ESF-Environment

	<ul style="list-style-type: none"> • Support the SPM in implementing the project as per environment safeguard measures stated in the ESF and ESCP • Provide lead technical support to the other thematic domains for environment safeguard requirements • Roll out various required environment safeguard related interventions as well as support the District team in program implementation and monitoring as per ESF and ESCP • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports and ensure compliance to environment safeguard measures • Regular monitoring and implementation support to the District and Project teams as per the requirements of ESF and ESCP including capacity building measures • Provide specialized technical support in identification of best practise, piloting, documenting success and failures. Drafting specific guidelines for environment safeguard related aspects and strategize for scaling up the best practices • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical) <p>The Environment Specialist at the PMU level will guide the overall process related to environmental aspects and implementation of the ESMF.</p> <ul style="list-style-type: none"> • Work with the district / sub-district level implementing agencies to implement and monitor the environmental components. • Review the screening process of proposed sub projects to ensure that there is no adverse impact on the community and involvement of women and/or need special focus on tribal involvement. • Monitor the environmental processes followed in implementation of the planned activities in PMP, NMP, BMP, Aquaculture Good Practice • Advice SPMU on environmental issues and guide DPMU and BPIU on policy issues. • Shall provide necessary inputs towards formulating training modules and imparting State Level Training. Shall be responsible for coordinating training sessions and awareness programs. • Shall support in conducting the environmental audit. • • Prepare quarterly monitoring reports •
(O)	State Project Manager Value Chain Development & Marketing
	<ul style="list-style-type: none"> • Lead project implementation activities in respective technical domain including planning and conceptualization of project activities, developing policies, and implementation strategies, prioritization of investments and preparation of annual action plans, resource mobilization including convergence, capacity building, TSA management, developing and nurturing partnerships with lead private sectors and other knowledge partners and monitoring of the activities in the respective technical vertical • Advice, support and assist the project leadership i.e., COO and PD on project implementation activities, specifically for effective and efficient investments. • Manage Assistant Project Manager Value Addition & Marketing • Render technical assistance and advice to district teams on resolving implementation problems • Design and facilitate Annual Action Plan development and appraisal

	<ul style="list-style-type: none"> • Ensuring effective convergence among multiple key stakeholders Build partnership with specific thematic sector resource agencies, academic institutions and research agencies • Building networking and partnership with various stakeholders, strategy and implementation plan, working with Government Organizations/NGOs • Play a lead role in cross regional knowledge sharing including learning and exposure visits, workshops and seminars and in producing knowledge products for the domain area • Design, develop and adopt a policy for implementation of the Value Chain Development and Marketing in the intervention areas • Support and monitor VCDC activities • Support in on-boarding agencies for value chain development • Strategize, plan and support in execution of the value chain development component of the project • Forge national and international partnerships to foster forward market linkages • Develop profitable multi-commodity FPOs • Monitor the FPO progress and draft suggestive guidelines and strategies • Present regular reports to the PD, COO and support them in presenting the reports to Project Steering Committee • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(P)	Assistant Project Manager Value Chain and Marketing
	<ul style="list-style-type: none"> • Support SPM-Value Chain Development & Marketing (VCDM) in the implementation of the value chain component • Support the VCDC activities value chain for value chain assessment and designing the strategy for the value chain development in the state • Monitor the field level resources for ensuring timely execution of the project • Support in official file movement and drafting of policies and program plans • Work in tandem with the TSA and SPM IB CB for ensuring robust FPOs are being formed • Forge network and convergence with market platers to foster forward market linkage • Facilitate execution of critical events for value chain development and program implementation • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(Q)	State Project Manager Monitoring and Evaluation
	<ul style="list-style-type: none"> • Setting up robust systems for effective monitoring and evaluation, and a Management Information System for the project • Design, develop and deploy a monitoring and evaluation framework for the project • Coordinate with various key convergence departments to collate data and analyse for preparing reports • Render technical assistance and advice to the district teams for M&E and MIS • Visit field regularly to ensure program implementation as per the guidelines • Deploy and monitor the third party monitoring and evaluation agency

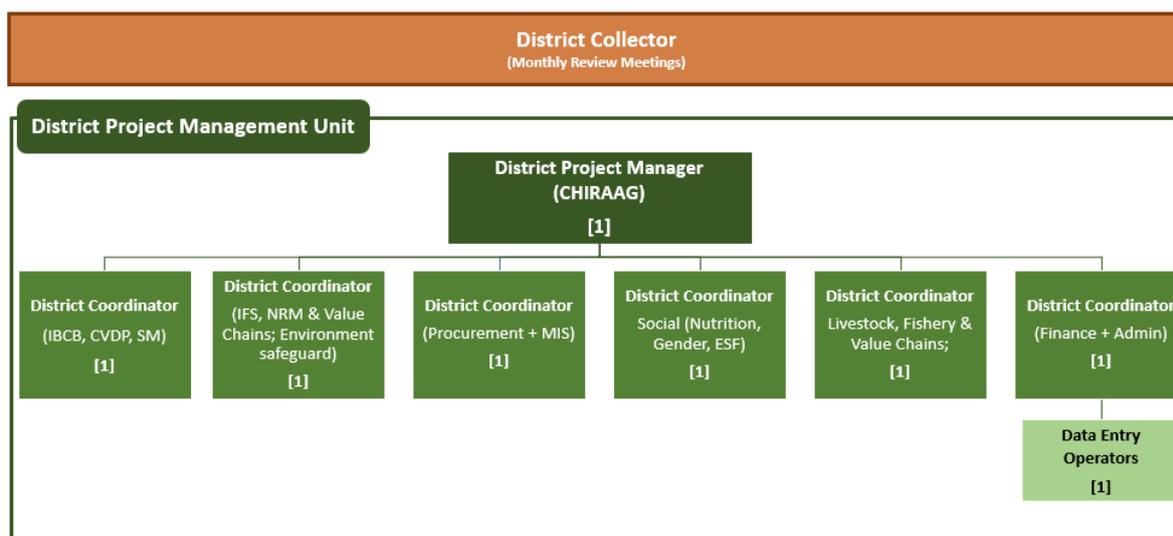
	<ul style="list-style-type: none"> • Present regular reports to the PD, COO and support them in presenting the reports to Project Steering Committee • Contribute to capacity building events and other knowledge events as a lead technical expert • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(R)	Assistant Project Manager - Assistant Project Manager - Monitoring & Evaluation
	<ul style="list-style-type: none"> • Support the SPM – Monitoring and Evaluation, in design, development and deployment of strategic plans/systems for M&E and MIS; and TSA management • Provide technical support to other thematic domain experts for M&E and MIS requirements • Roll out various required systems for M&E and MIS including support to the District and Block teams • Compiling progress reports • Organize capacity building events for M&E and MIS • Coordination with other related departments for MIS • Undertake field visits as required and conduct regular team meetings (virtual/physical)
(S)	State Project Manager Finance & Procurement
	<ul style="list-style-type: none"> • Provide lead support to the project for Finance and Procurement • Draft the policy guidelines for procurement and finance for the project and deploy such guidelines • Forge partnerships and manage PIUs viz., Beej Nigam for seamless implementation of the Finance and Procurement activities for the project • Manage two Assistant Project Managers (a) Procurement; (b) Finance • Commission timely audits and submit all key reports to COO/PD and to World Bank and DEA viz., IUFRRs, Audits, Procurement Plans etc.
(T)	Assistant Manager Procurement
	<ul style="list-style-type: none"> • Support the SPM – Finance and Procurement (FP), for effective and efficient procurement as per approved PPSD and procurement plans • Collate other thematic domain requirements and update the procurement strategies and plan on intermittent basis • Support SPM in setting up of a procurement system and processes as per the World Bank guidelines • Develop terms of reference for hiring of agencies and vendors • Ensure transparent and effective bid process management • Manage the procurement activities in World Bank STEP system and keep the information up to date
(U)	Assistant Project Manager Finance
	<ul style="list-style-type: none"> • Support the SPM – Finance and Procurement (FP), for effective and efficient financial management of the Project as per approved Financial Manual • Manage and oversee Project Financial Management • Support in developing annual budget as per the annual action plan • Support in timely and regular fund disbursement and submission of IUFRRs to Bank and CAAA • Ensure regular monitoring of the funds utilized and develop fund management report for PD and the Project Steering Committee
(V)	State Project Manager HR& Administration
	<ul style="list-style-type: none"> • Setting up human resource development systems and processes for the entire project

	<ul style="list-style-type: none"> • Design, develop and deploy a HR manual • Manage the human resource recruitment agency and complete the recruitments effectively in time • Conduct regular coordination meetings with other SPMs Facilitate training needs assessments on regular basis and help support development and execution of a training calendar for all the staffs at state, district and block levels. • Support conduct of knowledge events • Design, develop and deploy an effective grievance redressal systems
(W)	Assistant Project Manager - HR& Administration
	<ul style="list-style-type: none"> • Provide technical expertise in designing specific programs • Support in policy making, project implementation strategy, implementation plans for the program • Support in drafting operational guidelines, manuals • Facilitate effective program implementation • Drafting ToR for the identification and on-boarding of suitable Program Implementing Agencies (if required) Work in tandem with the SPM, APM and PE of the concerned thematic area • Facilitate DPM, BPM and PIA in effective implementation of the program • Design monitoring framework for the recording regular progress of the project • Support in regular progress reporting and monitoring
(X)	Project Executives
	<ul style="list-style-type: none"> • In different thematic verticals the APMs and SPMs will be assisted by Project Executives. <ol style="list-style-type: none"> 1. Community Institution Building & Nutrition: 3 PEs 2. Food & Nutrition Supportive Agriculture: 3 PEs 3. Monitoring & Evaluation: 1 PE 4. Finance; Procurement: 2 PEs 5. HR & Administration: 1 PE <p>The PEs will provide technical support functions to the SPMs and APMs mainly for data collection and analysis, report preparation, presentation, meeting and coordination.</p>

Note: Detailed Job Description of the professionals is attached in the annexure

Implementation structure at District level

The **District Project Management Unit (DPMU)** would be responsible for meeting CHIRAAG objectives and implementing project activities in the district. It would be responsible for coordinating, implementing and managing project activities across multiple domains. The DPMU would function under the leadership of the District Project Manager (DPM), supported by a team of thematic experts. The DPM will report to the District Collector of the respective districts and ensure effective coordination with other programs. The District Project Management Unit would act as link between the SPMU and Block Project Implementation Unit. It would ensure effective implementation of the project at the level of District and provide technical support to the project block units. It shall develop robust monitoring system to ensure effective follow up and handholding to the block units for implementation.



DPMU would be staffed with deputed technical professionals from the key directorates. Each key directorate viz., agriculture, horticulture, veterinary, and fisheries would depute an officer for the constitution of a DPMU. The officers would be responsible for effective implementation of the project at the district level. The main role of DPMU would be to establish and oversee structures and processes for:

- Project planning and appraisal – Annual Action Plan, Village Development Plan
- Designing strategies for orchestrating project implementation at the district level
- Project operations and financial management
- Manage convergence and partnerships
- Knowledge management and communication
- Human resource management at the district level
- TSA management at the district level
- Institutional coordination with KVKs
- Capacity building and training of the project staff and cadres
- Monitoring, learning, evaluation and information management
- Handholding support and technical assistance to block level units and PIA

For enabling effective convergence among the team members, monthly meeting would be organized, by the DPM Agriculture along with the other coordinators within the DPM. The objective of the meeting would be to:

- Review the project progress
- Plan the monthly implementation strategy
- Enable effective convergence among all the team members
- Ensure seamless implementation of program components entailing convergence – capacity building, bcc, etc.

Detailed Roles and Responsibilities:

Sr.	District Project Management Unit (DPMU) Resources
(A)	District Project Manager
	<ul style="list-style-type: none"> • Ensure timely and effective implement of the project activities in the targeted blocks for the district • Advice, support and assist the SPMU on thematic development activities, project administration and monitoring

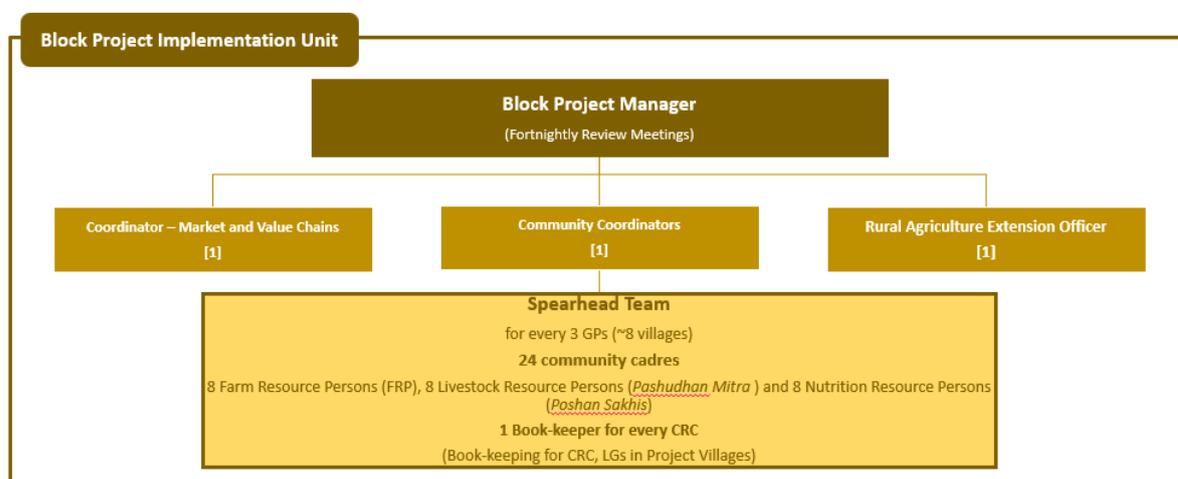
	<ul style="list-style-type: none"> • Develop structures and processes at the district level for human resource management, project implementation, training and capacity building • Project administration, financial management, procurement, and monitoring at district • Render administrative and management support to the block teams • Establish and manage robust monitoring and grievance management systems • Design and facilitate Annual Action Plan development and appraisal • Forge partnership with various stakeholders, working with Government Organizations/NGOs • Play a lead role in cross regional knowledge sharing including learning and exposure visits, workshops and seminars and in producing knowledge products for the thematic area
(B)	District Coordinator (IBCB, CVDP, SM)
	<ul style="list-style-type: none"> • Support DPM in designing various implementation frameworks; developing strategic implementation plans; executing and monitoring the approved plans; and reporting to the SPMU • Responsible for actual implementation of social mobilisation, capacity building, Institution building of LG, FPOs, CRC, GC etc. • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Program support in sync with other thematic domain requirements • Enable effective convergence with other key stakeholders, government and private agencies • Roll out various required domain interventions as well as support the Block team in conducting staff inductions/trainings/capacity building programs related to the concern domain area for staff as well as community cadre timely for quality program interventions • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the Block team and PIA
(C)	District Coordinator - (Integrated Farming System, Natural Resource Management & Value Chains; Environment Safeguard)
	<ul style="list-style-type: none"> • Support DPM in designing various implementation frameworks; developing strategic implementation plans; executing and monitoring the approved plans; and reporting to the SPMU • • Responsible for IFS implementation (working along with KVKs and IGKV staff), INRM activities (working along with SWC unit and TSA) as well as Value chain development (working along with TSAs) • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Program support in sync with other thematic domain requirements • Enable effective convergence with other key stakeholders, government and private agencies • Roll out various required domain interventions as well as support the Block team in conducting staff inductions/trainings/capacity building programs related to the concern domain area for staff as well as community cadre timely for quality program interventions • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports

	<p>Regular monitoring and implementation support to the Block team and PIA</p> <ul style="list-style-type: none"> • To coordinate with Environment Specialists at PMU and provide technical support to the CRPs at the Village level for effective implementation of the provisions of ESMF • Co-ordinate with district administration and IAs responsible for implementation of ESMF; • Coordinate with sector coordinators at DPCIU (agriculture, horticulture, fisheries, value chain, construction, irrigation)) to ensure the environmental mitigation measures are implemented as per the ESMF and attached management plans like PMP, NMP, BMP and Construction Management Plan • Monitor progress of implementation of ESMF highlighting environmental issues not addressed, to provide for mid-course correction • Shall be responsible for filling/reviewing the screening checklists and categorizing the risk of sub-projects and activities • Participate in the project level meetings • Shall assist/ involve in developing modules and training material for District Level Training • Coordinate training of project level staff with agencies involved.
(D)	District Coordinator (Procurement and Management Information System)
	<ul style="list-style-type: none"> • Support DPM and the field level staff in community procurement as per community operation manual (COM) • Support the DPMU for any centralised procurement • Provide specialized support for MIS reporting • Regular reporting to DPMs and SPMU • Monitoring and implementation support to the Block team and PIA particularly for community procurement and MIS • Provide coordination support to M&E activities
(E)	District Coordinator Social (Nutrition, Gender, Environment and Social Framework – ‘Social’)
	<ul style="list-style-type: none"> • Coordinates all activities related to nutrition, gender, environmental and social framework at the district level • • Support DPM in designing various implementation frameworks; developing strategic implementation plans; executing and monitoring the approved plans; and reporting to the SPMU • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Program support in sync with other thematic domain requirements • Enable effective convergence with other key stakeholders, government and private agencies • Roll out various required domain interventions as well as support the Block team in conducting staff inductions/trainings/capacity building programs related to the concern domain area for staff as well as community cadre timely for quality program interventions • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports • Regular monitoring and implementation support to the Block team and PIA
(F)	District Coordinator Livestock, Fishery & Value Chains
	<ul style="list-style-type: none"> • Coordinates all activities related to livestock and fishery as well as value chain at the district level • Support DPM in designing various implementation frameworks; developing strategic implementation plans; executing and monitoring the approved plans; and reporting to the SPMU

	<ul style="list-style-type: none"> • Provide specialized support in identification of best practise, piloting, documenting success and failures. Drafting implementation guidelines for successful projects and strategize for scaling up • Program support in sync with other thematic domain requirements • Enable effective convergence with other key stakeholders, government and private agencies • Roll out various required domain interventions as well as support the Block team in conducting staff inductions/trainings/capacity building programs related to the concern domain area for staff as well as community cadre timely for quality program interventions • Collect data, information, conduct analysis, and studies regarding interventions, compiling progress reports <p>Regular monitoring and implementation support to the Block team and PIA</p>
(G)	District Coordinator (Finance and Administration)
	<ul style="list-style-type: none"> • Provide lead support to the project for Finance and Procurement • Draft the policy guidelines for procurement and finance for the project and deploy such guidelines • Forge partnerships and manage PIUs viz., Beej Nigam for seamless implementation of the Finance and Procurement activities for the project • Manage two Assistant Project Managers (a) Procurement; (b) Finance <p>Commission timey audits and submit all key reports to COO/PD and to World Bank and DEA viz., IUFRs, Audits, Procurement Plans etc.</p>
(H)	Data Entry Operator (#1)
	<ul style="list-style-type: none"> • A data entry operator will support the DPM and the District Coordinators mainly for data collection and digitization and will also provide coordination support.

Implementation Structure at the Block Level

Block Project Implementation Unit (BPIU) is the most critical unit of the project. The quality and effectiveness of this unit would determine how effectively the project rolls out in the field in partnership with community institutions. The Block Project Team would be constituted by the deputed officers of the respective departments of agriculture, fisheries, horticulture, livestock development. The respective Block Level Officer of the department would leverage existing field functionaries for program implementation. The day-to-day implementation and management of project activities will be led by a Block Project Manager (BPM) along with a team of 12 officers i.e., Coordinator (Markets & Value Chain), and Cluster Coordinators. This 12-member block team will play a critical role in project implementation. The BPIU capacity will be strengthened to ensure high-quality implementation.



BPIU would be mainly responsible for developing the community institutions viz., CHIRAAG Resource Centres (CRC), Livelihood Groups (LGs), and Farmer Producer Organization (FPOs) and implement the project activities on ground. Developing robust LGs as platforms of the poor is the first step and subsequently plan interventions with well-designed livelihoods, nutrition and value chain activities for inclusive development of health, economic and social status of the rural and tribal communities. Community institutions existing within the project blocks prior to project implementation viz., Self Help Groups (SHGs), Village Organizations (VO), Joint Forest Management Committees (JFMCs), producer groups etc. will also be considered eligible for project implementation in specific situations.

Operational Structure at Block Level

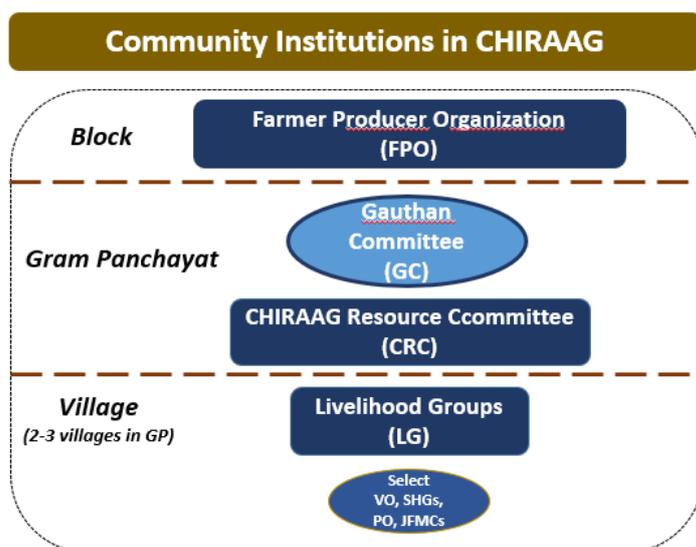
Detailed Roles and Responsibilities:

Sr.	Block Project Management Unit Resources
(A)	Block Project Manager
	<ul style="list-style-type: none"> • Head of implementation for the project at the Block level • Work in tandem with the DPMU to support in project implementation • Forge convergence with the government agencies and its block level officers for collective project planning and support in integrated implementation • Monitor, and orchestrate end-to-end implementation of the project at the block level • Lead planning exercise – Integrated Landscape Planning, Micro-plan and other planning for project • Develop strategy for project implementation at the field level • Build team –field functionaries, cadres; and develop capacity • Budgeting for program implementation, UC submission • Lead project implementation for all the thematic areas – community development, developing nutrition supportive resilient production systems, other livelihood models, value chain models • Monitor and nurture the community institutions – CRC
(B)	Coordinator – Market and Value Chains
	<ul style="list-style-type: none"> • Spearhead the implementation of the production models in an integrated manner so that it is aligned to the value chain development • Implement – work in tandem with the TSA for developing value chains • Regular monitoring of the cadre and community institutions for ensuring progress • Work in tandem with CC and monitor the work of Krishi Sakhi to ensure robust monitoring of the community institutions • Foster development of Livelihood Groups and ensure implementation of the program activities • Support in identification of low-cost solutions for management of natural resource structures • Capacitate the community for farming system and production models • Work in tandem with the KVK to robust training and capacity building of the LG, FPO
(C)	Community Coordinator
	<ul style="list-style-type: none"> • Project Lead on the ground for effective implementation • Is responsible for all activities across domain(SM, CB, IB, RNSA, RNSH, livestock and fishery) at the respective geography • Manages the team of CRPs in the geography • Converge and partner with the field functionaries of other government departments for effective convergence • Digital monitoring of the program activities • Develop framework for data collection at the block level

	<ul style="list-style-type: none"> • Support BPM in baselining, data driven planning, and identification of bottlenecks for evidence-based strategy making • Conduct data analysis on regular basis to identify impediments and challenges in the project • Develop progress report for multiple stakeholders • Support community-level beneficiaries in identifying and managing any potential environmental risks and impacts • Initiate the filling of the screening checklist for risk categorization for community level activities • Shall undertake site visits to different cluster, common facility, FPOs etc. as directed by the PMU/DPMU • Carry out supervision and monitoring of the implementation of the ESMFs with the help of identified project functionaries of below level • Shall conduct regular environmental monitoring of the interventions to Field level • Shall be contributing for preparing and compiling the Environmental Monitoring Report
(D)	Rural Agriculture/Horticulture Extension Officer
	<ul style="list-style-type: none"> • Spearhead implementation of the program activities across multiple domains in the field with a clear focus on nutrition supportive integrated farming system • Coordinate for the Village Development Plans and other planning exercise • Mobilization of the community into CHIRAAG Resource Centres • Convergence and mobilization of community-based institutions to the CRC • Deliver capacity building and modular training to the respective community institutions • Develop, capacitate, and monitor the field cadres – Krishi Sakhi, Pashu Sakhi, Poshan Sakhi, Book keeper etc. • Regular monitoring of community coordinator in day-to-day work • Regular monitoring and e-reporting of the project activities • Handholding support and regular monitoring of respective CRCs to gradually enable self-sustainable administration and management

Community Institutions in CHIRAAG

At the *Gram Panchayat (GP)* level, *Gauthan* Committees will be involved in facilitating village entry, facilitating Village Development Plans and convergence. Under *Gauthan* Committees, a dedicated CHIRAAG Resource Centre (CRC)¹⁵⁵ will be formed to anchor the project interventions



and provide support for implementation and monitoring. At the village level, multi-commodity LGs will be formed for mobilizing interested producer households to improve their livelihood activities related to farming and allied sectors. The LGs will be consolidated into FPOs for improved postharvest management, value addition and market linkages. Spearhead teams will support the mobilization and capacity building of the above institutions, as well as provide extension and advisory services to

¹⁵⁵CRCs will have 8-20 members drawn from *Gauthan* Committees, LGs and select community institutions.

producers.

Spearhead teams will be managed and supervised by BPIUs. The project will provide on-the-job training to field level staff and community resource persons, noting their crucial role in anchoring last mile project implementation.

Detailed Roles and Responsibilities:

Sr.	Community cadre
(A)	Cadre for VDPs
	<ul style="list-style-type: none"> • Facilitation support for the Village Development Plan preparation • Collection of village/Gauthan level data
(B)	Farm Resource Persons (Krishi Sakhi/Mitra)
	<ul style="list-style-type: none"> • Facilitate conduct of Integrated Farming System Schools • Train and handhold the farmers • Conduct the demonstrations • Collect data/information • Coordinate and support BPM and Cluster coordinators
(C)	Livestock Resource Persons (Pashu Sakhi/Pashudhan Mitra)
	<ul style="list-style-type: none"> • Facilitate conduct of Integrated Farming System Schools • Train and handhold the farmers • Conduct the demonstrations • Collect data/information • Coordinate and support BPM and Cluster coordinators • Facilitate and coordinate with Gram Panchayat, Gram Sabha, Gauthan Committee
(D)	Nutrition Resource Persons (Poshan sakhi)
	<ul style="list-style-type: none"> • Train the women and other vulnerable groups as well as handhold them • Conduct SBCC campaigns • Facilitate in the conduct of Integrated Farming System Schools • Collect data/information • Coordinate and support BPM and Cluster coordinators
(E)	Book Keeper
	<ul style="list-style-type: none"> • Maintain books of the LGs and CRCs • Facilitate group processes in LG and CRCs • Collect data/information • Coordinate and support BPM and Cluster coordinators

Eventually, the community institutions including the FPOs, and LGs would replace the block level implementation units over a period and perform all the activities that the block project implementation units will initially perform. Thus, the people's institutions are expected to take over the entire implementation responsibility of sustaining all activities after the project.

Planned investments in the component

The major investments in this component will happen under two sub-components.

Sub-component 5.1: Project monitoring and management (the monitoring and evaluation framework, strategy and implementation arrangement is detailed out later in a separate chapter)

The activities under this sub-component will support project coordination, implementation, financial management (FM), procurement, and environmental and social safeguards management at the state, regional, district, cluster and community levels.

Key activities are: (a) Hiring of a recruitment agency; (b) salaries and overhead cost of state and district project management units; (c) setup of a monitoring, evaluation and learning cell; (d) commissioned studies (baseline, mid-line, end-line) and process monitoring; (e) establishment of a management information system (MIS) based on information and communications technology (ICT) and geographic information system; and (f) study tours for officials.

The subcomponent will support project coordination, implementation, FM, procurement, and environmental and social safeguards management at the state, district, cluster and community levels. A State Project Management Unit (SPMU), will be established drawing officers from the Directorates of Agriculture, Horticulture, Veterinary services and Fisheries; hiring staffs from market and engaging short term consultants. The SPMU will be headed by a Project Director and supported by a Chief Operating Officer. The SPMU will be responsible for project implementation, in accordance with the agreed Project Implementation Plan, Community Operations Manual, COVID-19 Economic Recovery Response Manual, Project Agreement, Loan Agreement, the Environment and Social Management Framework and Commitment Plans, and Bank's fiduciary policies. The project will also establish DPMUs at district and BPIU at block levels to implement project activities. The BPIUs will report to respective DPMUs which will have a direct reporting line to the SPMU. Annex 2 provides detailed implementation arrangements.

The SPMU will hire TSAs to support project activities. Hiring of staff and consultants; training and capacity building, including exposure visits; procurement of resource/support agencies and service providers, office infrastructure, logistics support, MIS, geographic information system, ICT-mediated citizen engagement systems, and other operational expenses will be financed under this sub-component. Techno-managerial capacity building measures for state, district and block level teams will be undertaken at national/international institutes i.e. Indian Institute of Management, Raipur, Administrative Staff College of India, Centre of Good Governance etc. and through exposure visits.

Service delivery of DoAB will be improved through the set-up of a monitoring and evaluation learning cell with technical support for process monitoring, ICT and geographic information systems-based management information system, software applications, mobile applications etc. mainly for improving Soil Health Card development, delivery and traceability; and overall data management of project implementation. This will include an integrated dashboard at state level for planning and implementation monitoring at district, block and village levels. Results-based monitoring systems, online MIS with spatial/geographic information system mapping, beneficiary tracking portal, etc. will also be developed, as part of a decision support system. A bottom up overall data management system will be built by equipping the cluster coordinators with tablets and capacity building.

Sub-component 5.2: Knowledge management and State capacity (the knowledge management framework, the strategies and the implementation arrangement is detailed out later in a different chapter)

Knowledge Management and State Capacity will foster partnerships with knowledge organizations, promote knowledge exchange between various stakeholders, and access up to date knowledge from local, national, and international organizations. It will strengthen state capacity through the sharing of new information and knowledge in a similar development context to other states/countries. Technical support will be provided for capturing, preserving and scaling traditional knowledge and practices of tribal communities relevant to the project scope.

Key activities are: (a) partnerships with knowledge organizations; (b) hiring of a knowledge management and communication agency; and (c) support to district innovation through technical assistance for strengthening systems and processes, and commissioning studies, arranging events/meetings etc.

The state capacity will be strengthened by infusing new information and knowledge, and improving systems and processes, based on similar development contexts from other states/countries. The project will support the creation of an ecosystem to capture, preserve and scale traditional knowledge and practices of tribal communities relevant to the project scope. Toward this end, knowledge exchange between stakeholders will be promoted. The knowledge exchange process within and between communities, states, south-south countries and between developing and industrial countries, will be actively pursued through virtual webinars, workshops etc. Systems for identification and validation of tribal traditional knowledge, integration or refinement with scientific knowledge, documentation and packaging of tacit and explicit knowledge, maintenance of repositories and dissemination of knowledge, will be set up. For wider community level adoption of new knowledge, information (relevant tribal traditional knowledge and those finetuned with modern scientific knowledge) and promotion of innovations, particularly to drive household nutrition and augment income of youth and women, the project will invest in awareness campaigns, conducting tribal traditional knowledge *melas*,¹⁵⁶ etc. Emphasis will be placed on tribal to tribal knowledge exchange by facilitating the flow of ideas and information across the region.

Partnerships will be sought with national and international organizations i.e. Central Food Technology and Research Institute, Mysore; Indian Institute of Forest Management, Bhopal; National Institute of Nutrition, Hyderabad; Biodiversity International, etc. to access current knowledge on thematic focus areas, particularly climate change adaptation and mitigation technology. Stakeholder capacity will be built to facilitate accelerated adoption of such technologies/practices. For improved planning; inter-departmental convergence and functional integration; implementation and monitoring; and for promoting innovation, technical assistance support will be provided to project districts.

¹⁵⁶ Knowledge and technology fairs.

7.4. Procurement Management

7.4.1. Procurement arrangements:

State level : A State Project Management Unit (SPMU) will be set up at the State level with Department of Agriculture Development and Farmer Welfare and Biotechnology (DoADFWD). The SPMU, headed by a Project Director (PD), will also comprise technical component coordinators (i.e. agriculture, horticulture, livestock, fisheries and marketing), Financial Management Specialist, Procurement Specialist, Human Resource and Administration Officer, and Environmental and Social Safeguards Specialist. The PD will be supported by a Chief Operating Officer (COO). Director, Directorate of

Agriculture, Government of Chhattisgarh has been nominated as the Procurement Convener for CHIRAAG. As a nodal agency, SPMU will be overall responsible for ensuring procurement compliance and consistency as per agreed process and procedures. Procurement activities under the project are not envisaged to exceed NCB threshold.

SPMU and Chhattisgarh Rajya Beej Evam Krishi Vikas Nigam Limited (Hereinafter referred to as Beej Nigam) will be carrying out all project procurement activities, with exception of procurement activities which are identified to be carried out at community or district level. Beej Nigam a wholly owned unit of GoCG, as an implementing agency will have clearly defined roles and responsibilities including procurement of certain prior agreed items from the open market. Further details are provided in para 7.2.2 below.

Block and District level : At the district level, a District Project Management Unit (DPMU) would be setup and would function under the direct guidance of District Project Manager, supported by a team of thematic experts wherever necessary. DPMUs will be the focal point for procurement, reporting implementation progress to the SPMU, providing day to day guidance, training of trainers, handholding support to communities, overall coordination and oversight of procurement activities. DPMU-level contracts are not expected to exceed the request for quotations threshold of \$100,000 equivalent. Any activity above \$100,000 shall be carried out with SPMU oversight. The DPMU procurement officer will be responsible for its procurements, as well as block level procurement, engaging in procurement capacity building of village communities and ensuring compliance as per the agreed community level procurement arrangements. DPMU and BPIU will implement the district and block level project activities like arrangements for trainings, meetings, demonstrations etc. In addition, DPMU shall procure certain prior agreed community level activities which shall not exceed RFQ threshold of US\$ 100,000 equivalent.

Activities related to integrated natural resource management and integrated farming system management, will be managed by CHIRAAG Resource Committee (CRC) and a CHIRAAG Resource centre will be setup. The Directorate of Agriculture's Soil and Water Conservation Unit (SWCE) with coordination support from DPMU and BPIU will implement these NRM activities determined through CVDP process, and prior agreed and cleared by Bank in STEP. The SWCE implementation team will include a procurement point person and shall follow the project's agreed procurement procedures, as detailed in . project procurement strategy document (PPSD) prepared by SPMU and agreed with Bank .. Detailed implementation arrangement and process shall be provided in the Community Manual.

The staff at the district level shall include amongst others a District Coordinator – Procurement & MIS who will be responsible for maintaining all procurement records and provide support in preparation of plans, provide day to day hand holding support, collate data on the contracts and complaints and facilitate any procurement review or audit and provide information that may be requested by SPMU/Bank from time to time. The project intends to focus on building capacities of the Directorate of Agriculture.

Community level : At the community level, a CHIRAAG Resource Committee (CRC) will be created for coordinating the activities of the project at the village level. The Village development plan will draw from individual micro plans to determine the activities to be carried out at the community level. The contracts at community level are not envisaged to exceed \$10,000 per contract. DPMU shall be

responsible for collating and providing the information about planned and completed procurements in an excel table on a biannual basis, instead of putting the information in STEP. The project shall ensure that the agreed processes and procedures are fully complied (including eligibility, debarment and Bank's right to Audit). The concerned line departments may directly or thru Support Organizations (SOs) hired under the project will engage with community organizations (these may be SHGs, Village Organizations, Joint Forest Management Committees (JFMC), Farmer Producer Organizations (FPO) and Livelihood Group (LG)) and ensure appropriate implementation of project financed activities as per the community procurement manual. The District Coordinator – Procurement & MIS will undergo procurement training and will be responsible for ensuring that procurement is carried out as per the agreed community level arrangements. The District Coordinator – Procurement & MIS will also facilitate maintenance of all procurement records and any procurement review or information that may be requested from time to time. All equipment procured shall be digitized and be accessible to project officials and the Bank.

7.4.2. Beej Nigam roles and responsibility:

Beej Nigam will be carrying out procurement in accordance with Bank regulation from open market for activities as identified and prior agreed with the SPMU. All identified activities shall be included in the procurement plan and prior cleared in STEP by the Bank. While Beej Nigam has been largely responsible for State- funded procurement activities, its staff do not have experience in handling procurement under the World Bank Procurement Regulations. The selected Beej Nigam officials will need to undergo training in Bank procurement to enable them to carry out procurement in accordance with the Bank regulations and agreed processes and procedures. As an Implementing Agency, Beej Nigam shall be eligible to receive under the project the incremental operating cost for the project activities being carried out. The project shall not fund any seeds produced by Beej Nigam either on its own or on farmer's fields, for seeds required in the project implementation. However, seeds from open market, if required under the project shall be procured based on World Bank prior clearance and following the agreed procurement processes and procedures. As an IA all contracts which are not prior reviewed are subject to Bank post review. The same shall be carried out by the Bank on annual basis and the Beej Nigam has the responsibility of providing all the required information for these post reviews.

7.4.3. Sustainability Procurement Requirements:

The project procurement does not envisage any major contracts affecting environment and does not use the sustainability procurement requirements. Since procurements would occur at SPMU, DPMU and Community levels, these will be sensitized to procure the required Goods/ Equipment with due attention to after sales and service support, and availability of essential spares (where necessary). SPMU/ DPMU and other community organizations shall ensure maintenance of common community infrastructure created under the project.

7.4.4. Applicable regulations:

All Goods, Works, Non-Consulting and Consulting Services to be financed under the Project will be procured in accordance with the Bank's Procurement Regulations for IPF Borrowers (dated July 1, 2016 revised November 2017 and August 2018) herein after referred to as "Regulations", and the provisions of the Loan Agreement. If there is conflict between government decrees, rules, and regulations and the Bank Procurement Regulations, then Bank's Procurement Regulations shall prevail. The project will be subject to the World Bank Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants (Anticorruption Guidelines), dated October 15, 2006, and revised in January 2011 and as of July 1, 2016.

7.4.5. Procurement plan and Project Procurement Strategy document:

- (a)** For SPMU, DPMU, and the BPIU level activities, a Procurement plan shall be prepared for the first 18 months of project implementation (except community level activities) and shall be uploaded in Bank's Systematic Tracking of Exchanges in Procurement (STEP) for prior clearance by the Bank. Subsequently the plan shall be regularly updated at least annually. The plan shall be prior cleared by Bank and will be the basis for procurement activities to be carried out under the project and shall be used for day to day monitoring of procurement activities. Unless otherwise agreed with the World Bank, the Bank's Standard/Model Procurement Documents, Requests for Proposal Documents, and Standard Forms of Consultant Contracts will be used. Procurement under national procedures will be carried out based on National

Procurement Procedures (NPP) conditions agreed with the Government of India and listed below in para 7.2.16

- (b) For community level activities which are not envisaged to exceed \$10,000 information about planned and completed procurements (similar to information required in STEP) in an excel table on a biannual basis shall be collated and shared with Bank. The DPMU and BPIU shall ensure that these activities fully comply with the agreed procurement procedures (including eligibility and debarment). The post review of community level small value contracts shall be conducted by an independent procurement review consultancy firm to be hired by the PMU (with TOR agreed with the Bank) and the findings will be shared with the Bank each year.

7.4.6. eProcurement:

Procurement will be conducted through government e-tendering systems provided by ChiPS, which has been assessed and deemed acceptable by the Bank against Multilateral Development Bank (MDB) requirements for national competitive bidding for goods and works. National informatic centre (NIC) system shall be used for consultancy services unless another system is accepted by the Bank. For any international competitive procedures, use of ChiPS or any other eProcurement system shall require Bank's prior assessment and acceptance. No other eprocurement system shall be used for CHIRAAG unless prior agreed with Bank.

7.4.7. Use of eGeM:

Activities upto RFQ threshold of \$100,000 equivalent may be procured following GeM as per following details:

- Up to INR 50,000 in catalog mode (viz. any available item could be selected by IA without further competition), provided selected Item/Supplier meet the requisite quality, specification and delivery period.
- Up to INR 3 Million from the Supplier having lowest price amongst at least three Suppliers meeting the requisite quality, specification and delivery period. The tools for online bidding and online reverse auction available on GeM may be used by the Purchaser.
- Up to INR equivalent of US\$ 100,000 equivalent from the Supplier having lowest price and meeting the requisite quality, specification and delivery period after mandatorily obtaining bids from at least three Suppliers, using online bidding or reverse auction tool provided on GeM." In all the above cases IAs will record their assessment on reasonableness of price. GeM shall not be used for procurement in lieu of RFB- Open National or International Procurement Methods.

In addition, there are special terms for contracts financed under the project which needs to be adhered to and are available at eGeM website at following link :

<https://assets->

[bg.gem.gov.in/resources/pdf/STC%20for%20World%20Bank%20funded%20contracts.pdf](https://assets-bg.gem.gov.in/resources/pdf/STC%20for%20World%20Bank%20funded%20contracts.pdf)

7.4.8. Proposed Procurements activities:

SPMU being the nodal implementing agency will determine the activities which shall be carried out by Beej Nigam, DPMU and others. Below is a broad list of procurements that would take place in the project;

IA	Category	Activities
Beej Nigam/SPMU	Goods	Procurement of Seeds; Travis, Gravitational Drip system, Office equipment including fixtures, IT equipment and peripherals (laptops, computers, printers, servers for hosting the MIS/GIS systems etc.), Software (for IT), Tablets for project staff for planning & monitoring, Nutrition and recipe book, Breeding Stock for Mother Units and Infrastructure.
	Works	Some small works, as may be identified during implementation.

SPMU	Consultancy	Hiring of TSAs for - Institution Building and Capacity Building (Livelihood Group, CHIRAAG Resource Committee), CHIRAAG Village Development Plan, Implementation of Natural Resource Management Plan; Behavior Change Communication (BCC) through formative research and development of a toolkit for BCC; Mobilization and capacity building of Farmer Producer Organizations; Development of value chain of agriculture, and allied products, small ruminants and dairy sectors; Development of Fodder; Development of Value Chain Development Cell at the State and Sub-State levels; Identification and recruitment of project staff; Setting up ICT enabled management information system (MIS), Preparation of GIS based landscape plans; conducting the baseline, mid-line and end-line surveys along with thematic and process monitoring studies; Documentation and dissemination of Tribal Traditional Knowledge (TTK); Conducting summits for FPOs, Investor and Buyer-Seller meets and road shows for promoting Market linkages, brand co-creation through event management firms; obtaining Market Intelligence through partnership, Seed Production through Agriculture Universities.
IA	Category	Activities
Community driven development (CDD)	Goods/works	Activities based on Village Investment plan that draws from individual micro plans: Creation of small water harvesting structures, agroforestry, manage existing water bodies, shallow wells, on-farm water management, village commons management, biodiversity conservation, prepare farm inputs (saplings, compost, seed bank etc.), storage and primary processing of Agro-forestry and surplus agro-produce, non-farm activities; Establish demonstrations of improved technology and practices. Fencing, small livestock sheds, water storage tanks/pits in <i>Badi</i> , Composting/ vermi-composting structures, small machinery/tools, rainwater harvesting structures and small lined ponds (for fishery and irrigation and hardy crops and vegetables on pond ridges), initial supply of horticulture / agro-forestry planting/support materials; activities such as composting, bio-fertilizer, social forestry, rejuvenation of village ponds, nursery etc.; Strengthening of community ' <i>Gothan</i> ' ¹⁵⁷ or cattle shelters, agro-forestry for fodder, silage, azolla pits, establishment of Livestock Service Centers (or mobile units that will support access to inputs, services at common access points e.g., haat bazaars) and local manufacturing of feed/fodder etc. using natural resources; establishing and improving household, backyard livestock units; Seeds; Seed storage bins, Travis, Gravitational Drip system, Water lifting equipment, Fish Seed, Fish Feed.
District	Goods/NCS Works	Activities related to District level Krishi Melas; office equipment and maintenance activities. Seeds; Seed storage bins, Travis, Gravitational Drip system, Water lifting equipment, Fish Seed, Fish Feed Prior agreed, need based Community level activities below US\$ 100,000 equivalent.
SPMU/DPMU with support from SWCE	Goods/ Works	NRM investments (farm pond, check dams, contour bunding, field trenches, bunding, levelling, etc.)

¹⁵⁷ 'Gothan' are part of NGGB policy of GoCG and are meant to be cattle day care center. Under CHIRAAG these

Gothan will be actively used developed as NGGB Resource Centers (see annexure)

***All activities to be prior cleared **No activity shall exceed threshold of \$10,000. ***Activities to be prior cleared in STEP and not to exceed threshold of \$100,000.**

7.4.9. Procurement Risk Assessment:

Directorate of Agriculture is involved in the implementation of multiple government programs hence this office has the experience and understanding in regard to public procurement. However, the directorate is not familiar with Bank regulations and procurement capacity of the staff is limited. Also, the complexity of procurement involved in CHIRAAG which is different from the regular agriculture input material procurement by the Directorate, that too mostly through Beej Nigam. The project involves many new and innovative aspects, particularly those related to promoting cluster level technical support, enhancing farmers' access to market, partnerships and engagement with large corporates and the private sector etc., which makes this more challenging. Further, the procurement staff in the DoADFWD, SPMU and DPMU have no prior experience in handling procurement under the World Bank Procurement Regulations. Apart from compliance and consistency challenges the likelihood of delays in procurement decision and process, contract management delays and disputes are assessed to be potential areas of risk which will need to be mitigated.

Beej Nigam is GOCC's dedicated agency engaged in procurement of agriculture input materials as per the requirements of various implementation agencies coming under the preview of the Department of Agriculture Development and Farmers' Welfare and Biotechnology. Beej Nigam finalizes Rate Contracts (RC) for over 1000 items apart from procuring through open tenders. The project shall use the Beej Nigam's vast experience in procurement. Beej Nigam has been identified as an implementing agency for defined roles and responsibilities including procurement of certain items from the open market.

The project has developed a project procurement strategy document which based on the risk assessment and market analysis of major activities provides the procurement strategy to be adopted for efficient procurement.

7.4.10. Procurement Risk Mitigation Measures:

Based on the World Bank procurement risk and capacity assessment and to ensure consistency and compliance in project procurement at various levels the following mitigation measures have been agreed and shall be put in place:

- a. A CHIRAAG Procurement Committee will be constituted, which will be headed by the Director – Directorate of Agriculture. This committee will have nominated members from each of the stakeholder departments (Agriculture, Horticulture, Veterinary Services, and Fisheries) and technical experts from the IGKV/Beej Nigam/CSIDC/etc.
- b. Appropriate procurement staffing at CHIRAAG. The SPMU procurement manager shall be supported by a procurement assistant manager and a procurement consultant, and the staff at the district level shall include amongst others a District Coordinator – Procurement & MIS. Beej Nigam will assign experienced and skilled procurement staff to handle assigned procurement activities. Staffing arrangements for procurement have been provided in the Project Institutional Architecture.
- c. All procurement officials at SPMU/ Beej Nigam/ Division/District level shall undergo procurement training carried out by ASCI/ NIFM and subsequently conduct refresher training for other officials. DPMU shall be responsible for building capacity and hand holding support at the community level.
- d. Community procurement guidance/ manual shall be prepared and provide guidance for procurement at the community level. The Manual shall be agreed with the Bank and made available on or before project effectiveness. It will cover all aspects of community procurement planning based on the Village development plan, procurement staffing and capacity building, simplified procurement arrangements, procurement of specific type of machinery/ instrument, various agricultural inputs, small works, methodology, preparation of procurement plans in excel sheets, guidance on record keeping, oversight and annual review mechanisms etc.
- e. Procurement plan for first 18 months of project implementation enlisting all procurement activities to be taken up by all implementing agencies shall be prepared and uploaded in STEP for seeking Bank prior clearance. Activities not cleared prior cleared in STEP shall not be eligible for project funding, unless accepted by Bank. The procurement plan will be updated at least annually or as required to

reflect the actual project implementation needs and improvements in institutional capacity. It will also be posted on the CHIRAAG/department website and on the Bank's external website. For decentralized (community level) procurement activities the Division/ DPMU shall collate and provide complete list of planned procurement activities and contract awarded on biannual basis.

- f. Standard/ Model Bid documents and contract documents including e-Procurement documents as agreed with Bank shall be used.
- g. SPMU to develop an online procurement management information system which will track and provide required information regarding all procurement activities and contracts under the project. This will enable monitoring and facilitate capturing of real data on different stages of procurement at State, District and Block levels. MIS will feed into the project website and also support generation of real time customized reports for planning and monitoring.
- h. SPMU shall Develop and put in place a robust complaint redressal mechanism in line with the Procurement Regulations (Para 3.26 and 3.31) duly disclosed on the CHIRAAG website to address any procurement complaints received by the agencies procuring goods/ works/ services for CHIRAAG. Upon receipt of complaints, immediate action would be initiated to acknowledge the complaint and to redress it within a reasonable timeframe. All complaints will be addressed at levels higher than the level at which the procurement process was undertaken, or the decision was taken. Having resolved the complaint, if the complainant still wishes to escalate, then it will be to the second level, which will be an independent entity nominated by the GoCG. A formal complaints' mechanism for addressing grievances and complaints at community level will be detailed in the community manual and shall have a well laid out escalation process. The complaint handling authority, the form of complaint register, response time, decision-making mechanism, and other features will be outlined in detail in the community procurement manual for easy dissemination.
- i. Procurement post review (PPR) for SPMU /Beej Nigam level activities shall be conducted annually by the Bank for a percentage of contracts. For BPIU and below level activities including community level activities PPR for a percentage of contracts shall be conducted by an independent consultant to be appointed by SPMU, as per terms of reference, agreed with the Bank and the report with findings will be shared with the Bank annually. Based on the findings and/or in addition and as part of due diligence Bank may decide to carry out further review, as appropriate.
- j. All records pertaining to the procurement, from procurement planning to contract completion, shall be kept in a chronological order and shall be uploaded on STEP as and where required. This includes but is not limited to bid notification, register pertaining to sale and receipt of bids, bid opening minutes, Bid Evaluation Reports; and all correspondence pertaining to bid evaluation, communication sent to/with the World Bank in the process, bid securities, approval of invitation/evaluation of bids by the SPMU/ DPMU, contract document and its management related communication shall be retained by the concerned Implementing Agencies duly indexed manner and made available during review or when required by Bank /SPMU.

7.4.11. Delegation of Authority:

All delegation of authority will be as per the financial powers of the Chhattisgarh state mainly governed by 'Book of Financial Powers Vol I and Vol II' and 'Store Purchase Rules'. After the detailed operations manuals have been developed, the SPMU will provide applicable thresholds at each level assigned to the project implementation staff.

7.4.12. Disclosure of procurement information:

The following documents shall be disclosed on the CHIRAAG website;

- i) Procurement plan and updates
- ii) Invitation for bids for goods, works, and non-consultancy services for all International and national Competitive Bidding (ICB and NCB),
- iii) Request for expression of interest for selection/hiring of consulting services iv) All Contracts awarded for Goods /Works and consultancy
- iv) Monthly financial and physical progress report of all contracts
- v) Action taken report on the complaints received on a quarterly basis

7.4.13. Proposed procurement methods and related World Bank review thresholds:

Type of Procurement	Method Threshold (Million USD)
Works	International Open Procurement >40 National Open Procurement ≤40 National Request for Quotation ≤0.1
Goods, IT and Non-Consulting Services	International Open Procurement >10 National Open Procurement ≤10 National Request for Quotation ≤0.1
Consultant Firms	Consultant Qualification Selection: <0.3, as per requirements of paragraphs 7.11 and 7.12 of Section VII of the Procurement Regulations Least Cost Selection, FBS – in justified cases Quality and Cost Based Selection, Quality Based Selection - in all other packages
Direct Selection	No threshold – with prior agreement based on justification. For Goods/ Works/ non-consulting services: As per paragraph 6.8-6.10 of Procurement Regulations. For Consultants: As per paragraph 7.13-7.15 of Procurement Regulations.
Framework Agreement	For Goods/Works/Non-consulting services: According to paragraphs 6.57-6.59 of Section VI of the Regulations For Consulting services: According to paragraph 7.33 of the Regulations
Force Account	In accordance with paragraphs 6.54 and 6.55 of Section VI of the Procurement Regulations, and with prior agreement in Procurement plan with the Bank.
Nongovernmental Organizations (NGOs)	In accordance with paragraph 6.52 of Section VI for civil Works and Non-consulting Services; and paragraph 7.29 of Section VII for Consulting Services of the Procurement Regulations
Shortlist of national consultants	Upto US\$ 800,000
Note: DPMU/SWCE Procurement - up to the shopping limit of USD 100,000; and Community Procurement – USD 10,000 equivalent.	

7.4.14. Review Arrangements:

Type of Procurement	Prior review threshold (Million US\$)
Works	>10
Goods, IT and Non-Consulting Services	>2
Consultant Firms	>1
Individual Consultant	>300,000
Direct Selection	The justification of Direct Selection for all contracts

- (a) In the case of contracts subject to prior review, before granting/ agreeing to (i) a material extension of the stipulated time for performance of a contract; or (ii) any substantial modification or waiver of the scope of services or other significant changes to the terms and conditions of such that the contract, including issuing; or (iii) any change variation order or orders under such contract amendment (except in cases of extreme urgency) which would in aggregate, singly or combined with all variation orders or amendments previously issued, increase the original contract amount of the contract by more than 15% (fifteen percent); or (iii) the proposed termination of the original price contract, the Borrower shall seek the Bank's no objection to the proposed extension, modification, or change order. A copy of all amendments to the contract shall be furnished to the World Bank for its record.
- (b) Community Procurement: Procurements by the community will be limited to a value not higher than \$10,000 equivalent per contract. Based on the approved village plan a community level procurement plan shall be prepared clearly specifying the:
- work activities to be undertaken by the community themselves, and
 - Works/ Goods/ Equipment's directly procured by community following RFQ procedures, by inviting a minimum of three quotations from the qualified contractors/suppliers.

- iii) Goods to be procured as per the framework agreements entered into by SPMU (for any commonly used items). These agreements can be used by the community for meeting such requirements.

7.4.15. Procurement post review: Goods and Works

All other contracts are subject to post review. Contracts at SPMU and Beej Nigam level shall be annually reviewed by Bank for a percentage of contracts during implementation support missions and/or special post-review missions, including missions by consultants hired by the World Bank.

For BPIU and below level activities including community level activities PPR for a percentage of contracts shall be conducted by an independent consultant to be appointed by SPMU, as per terms of reference, agreed with the Bank. Based on the findings of these reports and/or in addition and as part of due diligence Bank may decide to carry out further review, as appropriate.

7.4.16. Other Procurement Arrangements/ methods and related thresholds are as shown below:

Any Other Special Procurement Arrangements: Open National Approach method for procurement of goods and works as per the above value thresholds will be conducted in accordance with the World Bank's Procurement Regulations and the following provisions:

- (a) Only the model bidding documents for National Competitive Procurement (NCP) agreed with the GoI Task Force (and as amended for time to time), shall be used for bidding.
- (b) Invitations to bid shall be advertised on a widely used website or electronic portal with free open access at least 30 days prior to the deadline for the submission of bids, unless otherwise agreed in 1.13 the approved procurement plan.
- (c) No special preference will be accorded to any bidder either for price or for other terms and conditions when competing with foreign bidders, state-owned enterprises, small-scale enterprises, or enterprises from any given State.
- (d) Except with the prior concurrence of the Bank, there shall be no negotiation of price with the bidders, even with the lowest evaluated bidder.
- (e) Government e-Marketplace (GeM) set up by the Ministry of Commerce, GoI will be acceptable for procurement under the Request for Quotations (RFQ) method.
- (f) At the Borrower's request, the Bank may agree to the Borrower's use, in whole or in part, of its electronic procurement system, provided that the Bank is satisfied with the adequacy of such system.
- (g) Procurement will be open to eligible firms from any country. This eligibility shall be as defined under Section III of the Procurement Regulations. Accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the Bank for reasons other than those provided in Section III of the Procurement Regulations.
- (h) The Request for Bids (RFB)/Request for Proposals (RFP) document shall require that Bidders/Proposers submitting Bids/Proposals include a signed acceptance in the bid, to be incorporated in any resulting contracts, confirming application of, and compliance with, the Bank's Anti-Corruption Guidelines, including without limitation the Bank's right to sanction and the Bank's inspection and audit rights.
- (i) The Borrower shall use an effective complaints mechanism for handling procurement-related complaints in a timely manner.
- (j) Procurement Documents will include provisions, as agreed with the Bank, intended to adequately mitigate against environmental, social (including sexual exploitation and abuse and gender-based violence), health and safety ("ESHS") risks and impacts

7.4.17. Proposed procurement methods Consulting Services:

Consulting contracts may be procured following Quality and Cost Based Selection [QCBS]; Quality Based Selection [QBS]; Selection under a Fixed Budget [FBS]; Least Cost Selection [LCS]; Selection Based on Consultants Qualifications [CQS] or Direct Selection [DS] as appropriate and as per Procurement Plan approved by the World Bank. CQS shall be used only for small assignments or Emergency Situations not exceeding US\$ 300,000. Under QCBS, weighting of quality and cost scores

shall depend on the nature and complexity of the consulting assignment, as per paragraph 4.10 of Procurement Regulations.

7.4.18. Prior review requirements – Consultancy:

During the procurement stage: (Prior to award)

For Prior Review Consultancy contracts, prior concurrence of the Bank will be applicable for the following: Expression of Interest (EOI); Short List; Request for proposal (RFP) and its amendments, if any; Minutes of pre-proposal conference, if any and if it leads to amendment to the RFP; Technical Evaluation Report prepared in the prescribed format of the Bank; Draft Contract Agreement along with Combined Evaluation report; Final Contract.

- **Short List:** National Consultants: Short List comprising entirely of national consultants: Short list of consultants for services, estimated to cost less than USD 800,000 equivalent per contract, may comprise entirely of national consultants.
- **Advertisement:** The Request for Expression of Interest for consultancy services estimated to cost above USD 300,000 equivalent per contract for firms shall be advertised in UNDP online and World Bank external Website.

At Contract management stage: (Post award stage)

In the case of contracts subject to prior review, prior Bank no objection shall be sought in case of following contractual amendment:

- a. An extension of the stipulated time for performance of a contract.
- b. Any substantial modification of the scope of services, substitutions of key experts, or other significant changes to the terms and conditions of the contract.
- c. Any substantial modification in the technical specifications or other significant changes to the terms and conditions of the contract.
- d. Termination of the contract.

A copy of all amendments to the contract shall be furnished to the Bank for its record.

7.4.19. Procurement post review – Consultancy:

All contracts which are not prior reviewed are subject to post review. Contracts at all levels shall be annually reviewed by Bank for a percentage of contracts during implementation support missions and/or special post-review missions, including missions by consultants hired by the World Bank.

7.4.20. Fraud and Corruption (F&C) and Audit Rights:

Bank's Anti-Corruption Guidelines, including the Bank's right to inspect and audit all accounts, records, and other documents relating to the Project that are required to be maintained pursuant to the Financing Agreement shall apply.

7.4.21. Contingent Emergency Response Component (CERC) Component:

In case it is decided to include a CERC component under the project, procurement and review arrangements shall follow the fast track emergency procurement arrangements permitted to be used for such contingencies. Notwithstanding any provision to the contrary in this section of the document, emergency expenditures required under the CERC shall be procured in accordance with the procurement methods and procedures to be set forth in the CERC Operations Manual applicable to such CERC. Arrangements applicable to the CERC component shall not apply to other components that will follow the arrangements stated in the foregoing paras. These measures shall be suitably detailed in the Community Procurement Manual for easy dissemination and implementation all across the project area.

7.4.22. Covid-19 Component:

The present COVID 19 has presented a dynamic environment which is changing rapidly. It has the potential of impacting contractors, suppliers, and consultants nationally and internationally. Due to difficulties in supply-chain, national and local movement restrictions enforced, procurement

arrangements may get impacted. The procurement activities to be completed in a timebound manner will be identified in the Covid 19 manual being prepared and prior cleared by Bank through STEP. Bank's Standard/Model Documents and Contracts shall be used but reduced competition and delays in contract execution cannot be ruled out. Since situation is evolving on almost day to day basis, it may necessitate review of the procurement strategy for timely execution.

7.4.23. 18 months procurement plan:

The first 18 months procurement plan as cleared in STEP is attached in Annexure 2. This shall be update atleast annually to reflect the progress and addition of new activities .

7.5. Financial Management

The Financial Management System for the Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project (CHIRAAG) has been designed to ensure transparency, accountability, inclusiveness in decision making and allocation of financial resources to the project beneficiaries

A sound Financial Management system is critical for efficient and effective decision-making for the implementation of the project. This includes proper planning, budgeting, accounting, financial reporting, internal control, auditing, and the physical performance of the project to manage the project resources properly for achieving the project objectives. Since the financial transactions of CHIRAAG will be done at different levels viz. state, district, block, it is imperative that the financial management framework captures the details of all transactions at every level and reflects them through the proper accounting system.

7.5.1. Financial Management Framework

The Financial Management Framework (FMF) has been developed as per the discussions with the project stakeholders, review of practices followed in other World Bank funded projects which this preparation team has referred to, and a review of the modern methods such as the Public Financial Management System (PFMS). The FMF consists of simplified arrangements to ensure transparency and accountability at all levels of the project's institutional setup.

7.5.1.1. FMF Institutional Roles:

This framework for the project would involve two sets of institutional setups, i.e., (a) the project institutional setup, and (b) the institutional setup of the Department of Agriculture Development and Farmer Welfare and Biotechnology.

- (a) **Project Institutional Structure:** The project institutional structure is responsible for project planning, implementation, and monitoring. The project institutions include;
- State Project Management Unit (**SPMU**) at the State Level,
 - District Project Coordination Unit (**DPMU**) at the district level, and
 - Block Project Implementation Unit (**BPIU**) at the block level.
- (b) **Department of Agriculture Development and Farmer Welfare and Biotechnology Institutional Structure:** The government's institutional structure **supports the project implementation using its field experience and connect with the beneficiaries.** This structure includes multiple agencies; however, only the following DDOs of the department will be members of the project's FMF implementation. Within the project, the role of these DDOs has been classified into four levels, which are;
- *First Level:* Directorate of Agriculture (**DAG**)
 - *Second Level:* Deputy Director of Agriculture (**DDA**), and **Beej Nigam**
 - *Third Level:*
 - ◆ Deputy Director of Horticulture (**DDH**) or Assistant Director Horticulture (**ADH**)
 - ◆ Deputy Director of Veterinary Services (**DDVS**) or Joint Director Veterinary Services (**JDVS**)
 - ◆ Deputy Director of Fisheries (**DDF**) or Assistant Director Fisheries (**ADF**)
 - *Fourth Level:* *Sub-Division Agriculture Officer (SDAO), and Assistant Soil Conservation Officer (ASCO)*

7.5.1.2. Fund Flow Platform:

The project funds flow will use dual platforms for its fund flow management;

- (a) The states existing **e-Kosh** platform provides seamless options for allotment of funds, drawing funds and making direct transfers into third-party bank accounts along with offering the strict control on fund movement
- (b) **Separate CHIRAAG Bank Account:** All the institutions involved in the project implementation and using a bank account shall maintain a separate bank account for CHIRAAG related activities. These bank accounts will be mapped on **Public Financial Management System (PFMS)** and provides last-mile visibility of bank account balances, fund transfers, and fund utilization. The PD will be the **State Scheme Manager (SSM)** for CHIRAAG

7.5.1.3. *Other Payees:*

Apart from the above listed institutional entities which shall be part of the FMF, below listed are other payees which may be treated as project payees;

- Livelihood Group (LG)
- Farmer Producer Organizations (FPO) / Producer Collectives
- Project Vendors – may be vendors at any of the project levels
- Gothan

The project institutions, viz; SPMU, DPMU, and BPIU shall implement the project, and these institutions shall be assisted by the departmental functionaries coming from various stakeholder departments, community cadre, and the project appointed TSAs. Other community-sponsored field functionaries, such as the Community Resource Persons (CRP), Local Resource Persons (LRP), Krishi Mitra, Pashu Sakhi, etc., shall work under the directions of the BPIU.

The detailed Project Implementation Architecture has been described in the PIP.

7.5.2. **Planning and Budgeting**

The Annual Action Plan (AAP) for a Financial Year (FY) will be prepared in the preceding FY by the SPMU, and it will be based on targets provided in the World Bank approved Procurement Plan and PAD of the CHIRAAG. This AAP will specify the budgets (physical and financial) for the procurements to be facilitated through the Beej Nigam. The SPMU, through the Project Director (PD), will place the AAP for a financial year before the steering committee of CHIRAAG for approval by the first week of December of the preceding FY.

The fund requirement for the project will flow through the budget of the Government of Chhattisgarh (GoCG). It will be completed when the project estimates are included in the state budget, presented and approved by the State Legislature under a separate budget head in the GoCG's budget as a 'demand for grants' of the Directorate of Agriculture (DAG). The project will be budgeted as a separate line item, and the funds will be allotted to the Directorate of Agriculture by the GoCG.

The Director, Directorate of Agriculture, will be authorized as the Drawing and Disbursing Officer (DDO) by the Agriculture Production Commissioner (APC), to draw the funds from the allocated budget for CHIRAAG.

7.5.3. **Funds Demand Application (FDA)**

In CHIRAAG, the project will release funds directly into the account of the Payee, instead of flowing these payments from one level to another, until it is finally transferred to the beneficiary/payee. Such fund transfers shall be actioned based on **Disbursement Advice (DA)** issued by the SPMU, which is issued only against an approved **Funds Demand Application (FDA)**. The FDA shall be initiated by the payee and will go through an approval process described fully in 7.3 .3.1.

Disbursement Advice (DA): Is an advice issued by the SPMU instructing a Payer or Payers to transfer/allocate funds into the bank account/eKosh of a specific Payee or Payees. The DA will also provide detailed information regarding the approved expenditure heads, and limit of expenditure under each head.

The FDA format will be developed by the State Project Manager – Program Support after due consultation with all stakeholders and keeping in view that all possible scenarios of fund demand are covered. The FDA format will also provide a checklist of all supporting documents that would be required for approving the same. This format shall be approved by the PD and will be reviewed as per the requirements of the project

7.5.3.1. *FDA approval process*

The FDA approval process has been designed to ensure that all stakeholders, from the community to the SPMU, are aware of the development activities, and the same are reviewed by each level before the final approval of the SPMU. The final approval of an FDA shall be with the SPMU and shall conclude with issuing a **Disbursement Advice (DA)**. This discipline will play a critical role when the project supports value chain related investments since business viability shall be the most vital parameter for the decision to support an FPO/LG/etc. for a value chain intervention.

Any entrepreneurs/value chain actors, etc, supported by the project shall be associated with an FPO/LG, and any interventions to support them will be the decision of the FPO. **The project will not transfer any amount to individuals or stand-alone value chain actors.** FPOs decision to support an individual/value chain actor would require to be assessed by the VCDC and approved in the FPOs business plan by the SPM-Value Chain Development. Below is the diagrammatic representation of the FDA approval flow for three scenarios (a) FDA initiated by Community Institutions (b) FDA initiated by BPIU, (c) FDA initiated by Department Institutions, and (d) FDA initiated by DPMU

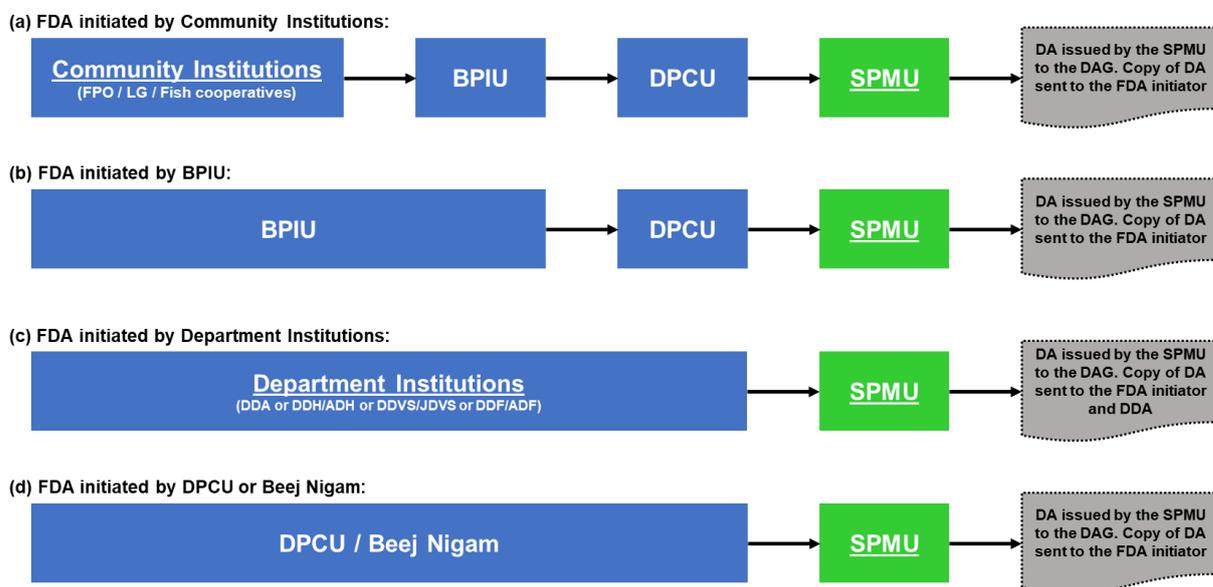


Figure 3: Diagrammatic representation of Process flow for FDA approval flow

7.5.4. Fund Flow Arrangement

The project aims to maintain complete transparency on the usage and movement of project funds. In this regard, the PFMS system will be a critical enabler. The state's **e-Kosh system** provides the project with clear visibility of fund movement as it flows through the department layers, supplemented by the **PFMS** platform provides visibility of fund utilization, starting from the state level up to the beneficiary. The mechanism for funds flow has been kept direct to ensure that the least number of layers are involved in fund disbursement. This will ensure timely disbursal and reduces redundancy. However, the approval for disbursement of funds and submission of its UC shall pass every layer relevant to the project activity. The fund approval process has been described above under the head **Funds Demand Application (FDA)** 7.3.3.

7.5.4.1. Bank Accounts and linking to PFMS

Institutions involved in funds flow will require to have separate bank accounts for receiving and utilizing project funds. On PFMS, the **PD will be the State Scheme Manager (SSM) for CHIRAAG**, and all bank accounts, including SPMU, DPMU, BPIU, and community level institutions, will be mapped and registered under the scheme in PFMS as implementing agencies. SPMU, DPMU, BPIU, and community level institutions will have separate CHIRAAG Bank account. This will provide last-mile visibility of bank account balances, fund transfers, and fund utilization across the project.

Protocols for these project-related bank accounts and the mapping of these institutions on the PFMS platform are detailed below:

Institution	Bank Account Requirement	Proposed account name	Proposed Authorized Signatories (1 st signatory is mandatory. Any one of the 2 nd and 3 rd signatories)	Status on PFMS
SPMU	Mandatory	Project Director - CHIRAAG	1. Project Director 2. SPM-Program Support 3. SPM-Integrated Farming Systems	Agency

DPMU	Mandatory	<District name> DPMU – CHIRAAG	1. DDO, Deputy Director Agriculture 2. District Project Manager 3. District Coordinator – Finance and Admin	Agency
BPIU	Mandatory	<Block name> BPIU – CHIRAAG	1. SDAO 2. Block Project Manager 3. Value Chain Development and Marketing Officer	Agency
Beej Nigam	Mandatory	Managing Director, Beej Nigam, CHIRAAG	As per the current norms of Beej Nigam	Agency
FPO	Mandatory	<FPO Name><District name> - CHIRAAG	As per Board resolution	Agency
Producer Collectives	Mandatory	<Producer collective Name><District name> - CHIRAAG	As per Board resolution	Agency
LG	Mandatory	<LG Name><District name> - CHIRAAG	As per Board resolution	Agency
Gothan	Mandatory	Gothan <Villag Name><District name> - CHIRAAG	As per Board resolution	Agency
Vendors, service providers, Project TSAs	Mandatory	Private bank accounts		Vendor

7.5.4.2. Allotments and Funds Flow:

All fund allotments and fund transfers will be based on DAs, which are issued by the SPMU on approval of an FDA or as per Quarterly Allocation (as described in the process note 7.5.4.3). Each DA will specify approved expenditure heads and limits under each head. The project will follow two separate and parallel tracks for allotments and fund flow;

- (a) **First Track:** fund allotments through e-Kosh from DAG to DDA and from DDA to DDH/ADH, DDVS/JDVS, DDF/AD, and SDAO, if required
- (b) **Second Track:** funds are drawn from e-Kosh by DAG and deposited into the CHIRAAG bank account of SPMU. After that, SPMU will transfer funds electronically into CHIRAAG bank accounts at DPMU and from DPMU into CHIRAAG bank account at BPIU;

To ensure that the main implementing institutions at the district and block can conveniently meet all approved project expenses under the appropriate head, appropriate level and in the proper time, the SPMU will make projections of quarterly fund requirements at each of the institutions at district and block and issue a DA for **Quarterly Allocation**. Such DAs issued for Quarterly Allocation will be valid only for the forthcoming quarter and will specify the approved expenditure head along with limits under each head. These will be reviewed every quarter, and fresh DAs issued.

7.5.4.3. Allotments and Funds Flow Process Note:

GoCG will allocate the funds into the e-Kosh of DAG	
SPMU will issue DA to the DAG as per the; (a) Quarterly Allocation, based on quarterly projections of the Annual Action Plans and, (b) demands raised through Fund Demand Applications (FDA)	
(a) Quarterly projections of the Annual Action Plans	(b) demands raised through Fund Demand Applications (FDA)
At the beginning of each year, the SPMU will draw up an estimate of funds that will be needed at each of the institutions involved in the project implementation. These estimates shall be based on the expected district-level procurements and operational expenses as per the AAP	Based on the DA, the DAG will make allocation into the e-Kosh of the Deputy Director Agriculture (DDA) or transfer funds directly in the bank account of other project payees (SPMU, Beej Nigam, LG, FPO, FC, Vendors, Gothan)
Before the beginning of the quarter, the SPMU will issue a Disbursement Advice (DA) for the Quarterly	As per the DA, the DDA will make the allocation into e-Kosh of the DDH/ADH or DDVS/JDVS or DDF/ADF

Allocation arrived at from the annual estimates (as described in the previous point)	
Basis the DA, the DAG will then (a) allocate the amount over eKosh to the respective DDAs, and (b) transfer the funds into the CHIRAAG bank account of the SPMU	For payments of compensation and benefits to contract staff of the project, SPMU will issue a DA to the DAG and payments will be released directly by DAG (through the treasury) into the bank account of the contract staff
Basis the DA, the DDAs will allocate the amount over eKosh to their respective DDH/ADH or DDVS/JDVS or DDF/ADF	For payments of honorarium to the community cadre, the amounts will be transferred to LGs against their approved FDA
Basis the DA, the SPMU will transfer the amount into the CHIRAAG bank account of the respective DPMUs. Further DPMUs will transfer the amount into the CHIRAAG bank accounts of the BPIU (as per the DA)	For payments to vendors of SPMU, the SPMU will issue a DA to the DAG and payments will be released directly by DAG into the vendor's account
The SPMU will review the usage of Quarterly Allocation before releasing the DA for the following allocation	DPMU/BPIU may initiate an FDA for any expenses which are not covered under their Quarterly Allocation. After approval of the FDA by the SPMU, DA is issued to the DAG, and payments will be released directly by DAG into the vendor's account. SPMU will also send a copy of the DA to the DPMU/BPIU
All institutions involved in the implementation of the project, i.e., SPMU, Beej Nigam, DPMU, BPIU, DAG, DDA, DDH/ADH or DDVS/JDVS or DDF/ADF will make payments only as per the advice given in the DA	Community institutions such as LGs/FPOs/FCs may initiate an FDA to demand fund as per any of the project programs. After approval of the FDA by the SPMU, DA is issued to the DAG, and payments will be released directly by DAG into the bank account of the community institution. SPMU will also send a copy of the DA to the FDA initiator and all the institutions who had approved the FDA before reached the SPMU for final approval

Diagrammatic representation of project fund flow has been provided in the next page;

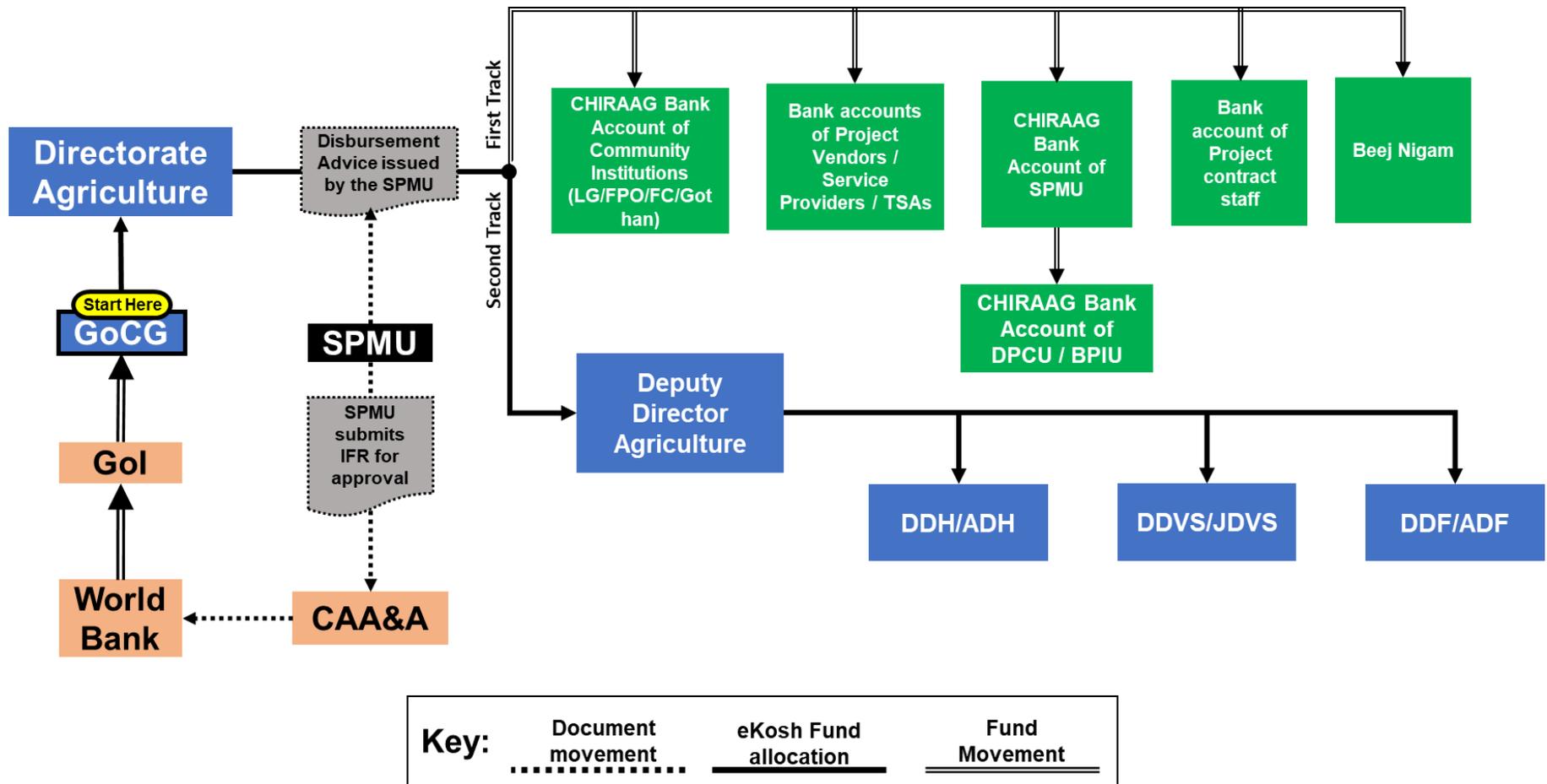


Figure 4: Diagrammatic representation of funds flow

7.5.5. Financial Reporting and audit

The basic principles of financial reporting mechanism will use a multi-tier system for keeping account of project expenditures;

- **Department:** At the departmental level, which includes the DAG, DDA, DDH/ADH, DDVS/JDVS, DDF/AD, and SDAO, all expenditures shall be accounted in the states e-Kosh system
- **Project Institutions:** For project institutions, i.e., SPMU, Beej Nigam, DPMU, and BPIU, project funds will be drawn from the e-Kosh and deposited in separate CHIRAAG bank accounts of these institutions. All expenditures will be backed with the required paperwork and recorded on a computerized accounting system
- **Community:** All community institutions who receive project funds will be required to maintain manual accounting books [cash books, vouchers with supporting documents, bank statements reconciled with the cash books]. However, the project intends to build capacities for digital record keeping. Quarterly Utilization Certificates [UC] will be prepared by all recipients of project funds, compiled and consolidated for each district by DDA and submitted to SPMU within 30 days of the close of each quarter

7.5.5.1. Financial Reporting

The quarterly financial reporting for the project will be done as per the agreed templates between the GoCG and the World Bank. The PD will be responsible for preparing the quarterly Interim Financial Reports (IUFs) and submit them to the World Bank within 45 days of the close of each quarter. These IUFs will become the basis for disbursements from the World Bank. The preparation of quarterly IUFs will follow the protocol described below;

- e-Kosh reports for all expenditures processed at the departmental level, including at the state, district and sub-division levels
- Beej Nigam will maintain all procurement records as per the World Bank regulations and maintain all agreed statements of accounts reflecting opening/closing balances, all receipts, and uses of funds, duly reconciled with bank statements
- Statements of Expenditure [SOE] in agreed format reflecting opening/closing balances, all receipts, and uses of funds, duly reconciled with bank statements submitted by the SPMU and each DPMU. The DPMU level accounts will incorporate BPIU level financial statements
- Consolidated Utilization Certificates [UC] from each district – separately for Livelihood Groups, Gothan Committee and FPO levels to track the end-use of project funds at community levels
- PFMS Dashboard report on unspent balances in bank accounts at all levels will provide supplementary information and used primarily to reconcile the financial reports;
- All subgrants released to community institutions, following the standard operating protocols documented in the Community Operational Manual, will be considered as expenditures for purposes of disbursement. The project will separately track and reconcile the Utilization Certificates received from community institutions with the PFMS Dashboard report on unspent balances in bank accounts. Unspent balances in bank accounts at all levels will be adjusted and refunded at the close of the project.

7.5.5.2. Audit Arrangements

- **Internal Audits:** Chhattisgarh General Financial Rules (CGFR) will provide the internal control framework, including internal audit processes, for all expenses incurred under CHIRAAG using e-Kosh for accounting. SPMU, DPMU BPIU, and Beej Nigam will also operate within the principles of the CGFR rules and the Project Financial Manual [to be developed]. For the community-level institutions, the governance arrangements, including the financial and administrative procedures outlined in the COM, will guide the financial management processes, including the delegation of financial powers. The project will engage a firm of a chartered accountant as internal auditors for the conduct of quarterly reviews and report to the project management.
- **External Audit:** Through the State Principal Accountant General, the CAG will conduct the external audit of the project related expend incurred at the departmental level, including Beej Nigam and any other Project Implementing Agency. Statements of expenditure at all project

levels will be submitted to the CAG by June 30 each year to allow adequate time for the audit, which will be conducted per ToRs agreed by the CAG for the audit of WB financed projects. Audit reports will be submitted within nine months of the end of each financial year.

7.5.6. Staffing Plan for Financial Management

To support the project with the implementation of sound financial management practices and ensure that all the internal and external compliances related to financial management are duly supported with enough human resources, the project has provisioned staffing at various levels of the project. These have been described below;

SN	Level	Designation (No. of Resources)	Brief roles and responsibilities
1	SPMU	State Project Manager – Program Support (1)	<ul style="list-style-type: none"> Responsible for all policy formulation and implementation related to Procurement and Finance across the institutions involved in the project
2	SPMU	Assistant Project Manager – Finance (1)	<ul style="list-style-type: none"> Supports the SPM-Program Support Responsible for collating all reports and compliances by the project institutions, implementing agencies and community institutions Facilitates audits, and submits IUFs
3	SPMU	Project Executives (2)	<ul style="list-style-type: none"> Support the APM-Finance Report preparation, maintenance of all financial records, supporting in audits Managing queries from various project institutions
4	DPMU	District Coordinator – Finance and Admin (1 at each of the project districts)	<ul style="list-style-type: none"> Reports to the APM-Finance Works closely with the DDA, and other implementing agencies at the district level to ensure that all policies are being implemented correctly Supports internal and external audits Works with the BPIU team to ensure that all required documentations are correctly followed by the community institutions and other project beneficiaries as mandated by the project

7.5.7. Digital platform for raising FDA, approval and fund disbursement

To promote transparency and smooth flow of the FDA, the project envisages developing online processing of the FDA's. For this, the project will either develop or use existing resources available within the state or use open-source platforms. Such a platform will be used for generating FDAs, facilitate approval of FDAs from one level and movement to the next, and release a fund release advice for the actual disbursement. Using a digitized platform will make the process transparent and would require a lesser workforce at SPMU.

There are plenty of process flow management cloud-based platforms available for reasonable subscription charges, and the project will identify from among such a platform to implement the state's FDA process. One such platform is known as **Trello**, or the project may also use the extended features of Tally, etc.

7.5.8. Financial Management Manual

Detailed Supplementary Finance Rules, specific to this project CHIRAAG will be prepared to detail the accounting, funds flow, internal control requirements, financial and administrative powers, Interim Unaudited Financial Report (IUFs) requirements, internal and external audit, which shall be supplementary to the General Finance Rules of the PMU. **The responsibility to develop this detailed Supplementary Finance Rules lies with the SPM-Program Support** within two months of project initiation.

7.5.9. Computerized Accounting System

The project may consider using a computerized accounting system. This will be assessed during the project implementation tenure.

7.5.10. Disbursement Arrangements

The World Bank will finance 70 percent of project expenditures up to US\$100 million. Disbursement will be based on quarterly IUFRRs submitted to the office of CAAA and the World Bank. The following process will apply to the disbursements from the World Bank Loan: (a) GoCG will pre-finance all expenditures under the project using the State budget; (b) every quarter, the project will prepare IFRs and electronically upload the same on the portal of the Office of Controller General of Aid, Accounts and Audit [CAA&A]; (c) IUFRRs will be processed by CAA&A and electronically submitted to the Loan Office, World Bank, Chennai for disbursements in US\$; (d) World Bank Chennai will trigger the payment in US\$ into the GoI Consolidated Fund maintained in RBI New York; (e) On back to back basis, GoI will transfer the funds [in INR equivalent] into the Consolidated Fund of Chhattisgarh maintained in RBI Nagpur.

7.6. Knowledge Management

7.6.1. Objective

This subcomponent aims to make available the learnings from this project for the larger benefit of the state and its implementers, to aid continuous social transformation of the farming community and other intended beneficiaries of the project. The project will assist the State to strengthen such processes: to develop more organized and accessible information and knowledge base; strengthening knowledge sharing processes at various levels, including internal and external; supporting processes for accelerating the identification and refining and communicating of innovations, good practices, policy findings, and converting information to high quality knowledge and learning materials for different audiences.

Knowledge Management is the process of capturing, developing, sharing, and effectively using organizational knowledge. It refers to a multi-disciplined approach to achieving organizational objectives by making the best use of its knowledge. This organizational knowledge is the total sum of (a) what its people know, (b) repository of knowledge, such as existing reports, evaluations, emails, procedures, etc and (c) such knowledge which is available within the organization but not accessible to its people for use. This inaccessible knowledge could either be because the organization doesn't know where to access it or because the person(s) holding it do not want to share it.

Organizational knowledge can be classified into **tacit** knowledge and **explicit** knowledge;

- Tacit knowledge is the kind of knowledge that is difficult to transfer to another person by means of writing it down or verbalizing it. For example, one cannot write down and teach a person to ride a bike
- Explicit knowledge is knowledge that can be readily articulated, codified, stored and accessed. It can be easily transmitted to others. Most forms of explicit knowledge can be stored in certain media

A successful Knowledge Management effort needs to convert internalized tacit knowledge into explicit knowledge to share it. The same effort must permit individuals to internalize and make personally meaningful any codified knowledge retrieved from the knowledge Management effort. For knowledge to be made explicit, it must be translated into information. The knowledge process interaction between explicit knowledge and tacit knowledge follows a cycle in which tacit knowledge is 'extracted' to become explicit knowledge, and explicit knowledge is 're-internalized' into tacit knowledge.

7.6.2. Broad activities under Knowledge Management:

- Inventory and organization of existing information and knowledge and prioritizing needs
- Strengthening the capacity to transform existing information into knowledge, action and learning
- Developing an information exchange and knowledge access system for practitioners (wikis, community of practice) linked to information and knowledge base etc.;
- Developing a rigorous exchange and visit system for generating best practice and strengthening capacity
- Based on the above, develop innovative knowledge and communication products and processes

The Knowledge Management system will also need to build in structured links with M&E, MIS analytics, thematic teams and HR, as all are closely engaged in information generation as well as knowledge and learning. Specific support will be to thematic components with their own plans for knowledge management.

7.6.3. Knowledge Management Strategy:

A good knowledge management strategy provides the framework for this knowledge transfer of converting tacit knowledge into explicit knowledge. Below is an illustrative knowledge transfer

framework that the project may use in its efforts to make available all the learning and knowledge derived from the project for sustaining transformative activities beyond the project period.

Knowledge Transfer Framework (Illustrative)			
	Identify critical areas of knowledge loss	Design to capture knowledge	Knowledge dissemination plan
Tools / methods	<ul style="list-style-type: none"> Interviews Focused Group Discussions (FGD) Consultation workshops with stakeholders 	<ul style="list-style-type: none"> Develop a digital knowledge framework to capture and store the data All TOT training modules, POP modules and Best Practices are stored in one hub 	<ul style="list-style-type: none"> Knowledge dissemination using digital tools to have far reaching impact Develop bite sized learning modules in local language for easier absorption
Tacit knowledge	<ul style="list-style-type: none"> Tribal practices, food habits, plucking of NTFP Way to use of various medicinal plants and herbs Methods of value addition to various crops 	<ul style="list-style-type: none"> Develop local groups for collecting and documenting the traditional knowledge Consultations with successful entrepreneurs and other value actors 	<ul style="list-style-type: none"> Identification of Training of Trainers (TOTs) farmers and field schools Develop audio-visual demonstrations or guidelines of best practices and techniques
Explicit knowledge	<ul style="list-style-type: none"> Unawareness of government schemes to support value addition Standard operating procedures Production enhancing techniques 	<ul style="list-style-type: none"> Designing a knowledge framework to capture information related to scheme guidelines, package of practices (POPs), SOPs, etc 	<ul style="list-style-type: none"> Development of digital training modules relevant to farmers, FIGs, FPOs and Department staffs Conducting Knowledge workshops to share the project learnings Facilitating demonstrations and digital trainings at farmer field level through resource agencies
Exit plan	<ul style="list-style-type: none"> Identify key stakeholders to share the exit plan Listing key Baseline survey report, MIS reports, project reports, industry connects and Monitoring and Evaluation reports 	<ul style="list-style-type: none"> Facilitating MOUs with learning organizations who will transfer the knowledge among the field functionaries and community Facilitating MOUs with universities and research institutes who will maintain the project knowledge repository 	<ul style="list-style-type: none"> Conducting Sustainability workshops to highlight key success and challenges of the project with the key stakeholders Handover of all project documents to designated directorate staff, responsible for next phase of project designing and implementation

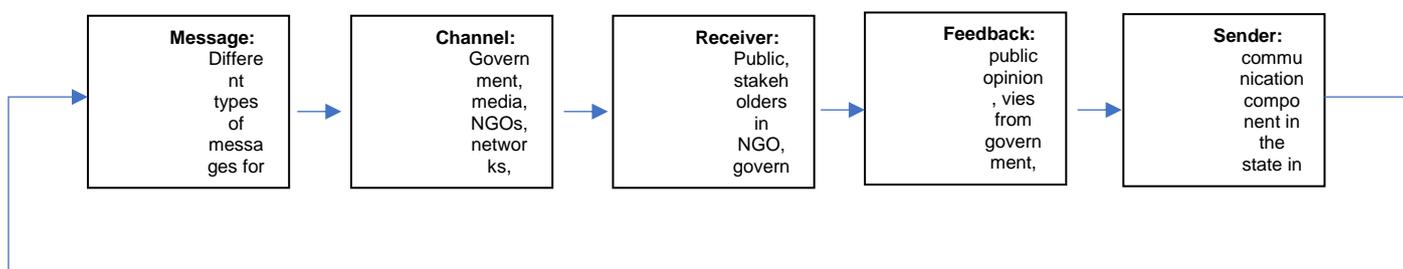
The strategy aims to identify the areas of knowledge loss, devise a design to capture such knowledge and then develop platforms for dissemination of the knowledge acquired.

7.6.4. Communication Strategy:

Objectives of the communication subcomponent of the project:

- Disseminating to the project beneficiaries and the outside world the earnestness of the State about poverty alleviation
- Ensuring participation of beneficiaries and other stakeholders in the process
- Ensuring timely/quality dissemination of project components to aid timely interventions
- Transforming women's groups into learning centres

The objective is for a two-way communication among all the stakeholders of the project. An illustration of the two-way communication among different players is given in the following figure:



Strategic Communication involves active solicitation of people's perspective to help consider options to shape the formulation of policy, ensuring that the mechanisms are in place for a two-way flow of information and to build consensus among stakeholders about the development agenda. To ensure a two-way flow of information, both internal and external factors that influence human communication are considered. Internal factors include various human aspects such as culture, psychology, behavior and attitudes, while external factors include various technological or non-technological vehicles such as print and broadcast media, information and communications technology (ICT), folk media, and interpersonal,

face-to-face or group communication. These are the factors that help develop appropriate messages, identify the right channel or vehicle to deliver these messages and gather feedback in effective and meaningful ways so that it can be used in the formulation, implementation and monitoring of the project development objectives. Relevant information or messages need to be translated into the local language/dialect so that they can be understood by people on their own terms at all levels. The strategic communication flow in the preparation and implementation of the Development Strategy is represented in the above Figure. The Communication Strategy has two components:

- **Communication for Behavioral Change:** Communication for Behavioral Change ensures that beneficiaries are empowered and motivated to participate in their own development. It also prompts an interactive, dialogue mode to effect sustained behavior transformation, leading to positive action
- **Information & Documentation:** Information Component aims to ensure that information flows within the project and between the project and the outside world i.e. intra and external communication about objectives, vision, components, finances, processes, final outcomes and impact of the project

While both the components have different scopes, the outcomes of each feed into the other. On one hand, information about the project flows to the grassroots, facilitating behavioral change and on the other, periodic assessment provides feedback into the information infrastructure and monitoring and learning system. These new learning is fed back and operationalized into the project.

7.6.5. Strategies for Communication: The strategies for communication are:

- Detail out types of information to disseminate and the target audience, processes for communicating, methods and timing
- Flow of learning, information from the grassroots – vertical and horizontal
- To ensure transparency, accountability, compliance with the Right to Information Act
- To support participation and capacity building of poor communities
- Encourage partnership – NGOs, Private Sector, Experts/consultants
- Information/Documentation Depository and response time at the District and Mandal levels
- Responsibility for generation and dissemination of information

7.6.6. Communication Processes / Activities in the State and at the District level:

- Monthly project newsletter
- Publication of project processes / activities in states own periodicals / Magazine to disseminate information about the project processes / activities
- Publication in department annual reports
- Development of Communication materials and translating various project materials so that process knowledge reaches the target group
- Collection of success stories from districts
- Conducting writers' workshops to develop skits and songs for artists. Identification of artists, selection and imparting trainings to artists at district and zonal levels
- Conducting press tours and documentation. Collecting press clippings from both state and district level
- Publishing brochures and pamphlets on various project components
- Selection and training of Community Reporters. Development of appropriate syllabus for the Reporters.
- Production of films, CDs and audio-cassettes on various project components. Creation of a series of case studies and training in audio-visual medium focusing on, diverse themes like production enhancement, value addition, etc.
- Utilizing the Government owned radio media to disseminate information to the community

7.6.7. Implementation Arrangements:

To do this, the project will fund under the M&E unit a knowledge management leader, with key support on communications and documentation support, as well as specialized agency support on networking, product development and events, and communications. It will support hardware and software and training for information and knowledge IT platforms, events and fora, travel costs for exposures, as well as development of high-quality knowledge and media products. Action: Over the next six months the project should hire an agency with specialist experience in knowledge management (primarily, rather than communication only) to assist with an inventorying of existing information and knowledge, and review associated processes ongoing and planned, and develop strategy. The agency should also provide direct guidance to ensure core accessibility to the inventory, test an initial practitioner exchange platform as well as prepare with the project team a number of high priority quality and practical knowledge products.

7.6.8. Initial work plan

- Review and inventory of knowledge management processes and materials
- Knowledge management strategy
- Basic information storage and organization
- Initial information and knowledge exchange system development (wiki etc.)
- Documentation of existing priority information
- Start stakeholder learning workshops across themes
- Identify and support thematic communities of practice
- Initial communication messages and materials
- Establish knowledge management monitoring system

7.6.9. Core links for knowledge management

KMC is closely associated with all aspects of Monitoring, Evaluation and Learning. The areas of association are:

- With M&E: case studies, thematic studies, impact assessments – what really works, and why not Resources / structure
- With process monitoring: understanding ‘what’ and causes
- With analysis and MIS: link with thematic analysis, data mining
- Close link into strategic planning: annual, mid-term, program level
- Learning and capacity building processes: for community and staff, and awareness building of key partners
- Developing guidance material

7.7. Digital Interventions Under CHIRAAG

7.7.1. Objective

To create a state of the art, efficient, effective technology-based platform for hosting and enabling the delivery of range of projects – for Human development, Livelihoods and Social Development - with a focus on delivering last mile services. It also includes an Integrated, single source of truth system, with IT Governance and Accountability across the levels, enabling community to access MIS based services to evaluate and monitor their performance, linking applications with line departments, and facilitating emergence of digital and analytics culture in the organization

- CHIRAAG will invest in a mission critical technology enabled process driven MIS system. This system will begin at the grassroots level involving the field level implementation personnel, up to the state project leadership enabling them to better plan and steer the project towards its intended objectives
- The project will employ front-end (including desktops, tablets, mobiles, etc.) devices and applications for ensuring transaction-based data capture at the source where it is generated for maximum transparency and accuracy
- This 'MIS back bone' is expected to reduce the time and resources needed for data collection transportation and feeding directly into informed decision-making processes at different levels, thus leading to greater organizational effectiveness, monitoring, evaluation and compliance
- The whole technological architecture will be developed following a modular approach to plug-in any new interventions at any stage of the project life-cycle
- Existing IT platforms, applications and other technology-based platforms of the departments will be assessed to ensure that least resources are deployed on re-invention. Attempts will be made to make existing platforms interactive and remove redundancy. Applications developed by the Government of India, like the Farmers Portal will also be used
- The IT strategy for CHIRAAG will focus technological interventions at various stages of the agriculture value chain, such as: (i) Production and Productivity, (ii) Value Chain, Marketing and Logistics (iii) Monitoring and Evaluation.

7.7.2. As is Scenario:

Currently the key line departments of agriculture department, i.e. Directorates of Agriculture, Horticulture, Veterinary Services, and Fisheries have developed their own digital platforms for data collection and information access. However, the beneficiaries largely remain the same and has led to duplicity. Also, within each of the line departments, there are multiple portals and platforms for different activities and leads to confusion and overload. For example, during discussion with one of the stakeholders, it was noted that the Directorate of Horticulture alone works on approximately 42 portals.

Similarly, there are online portals, mobile applications and other IT based platform that the Government of India has developed for various schemes and uses. However, the state has still developed similar platforms or are unaware of similar work done by other governments. The project will make efforts to get rid of redundant platforms and make the existing ones interactive.

7.7.3. Development of a unified service delivery platform

There are numerous government directorate, and departments under the purview of the Department of Agriculture Development and Farmer Welfare and Biotechnology which are delivering various services to the same beneficiary, i.e the Farmer. However, each has its own parallel systems for delivering their programs and extension services. The department recognizes these redundancies and intends to develop a unified service delivery platform. The initiative is to start with integrating the farmer database and registrations of the following departments / units / agencies and build a unique beneficiary platform. Following departments be integrated in first phase;

- Farmer registration on Soil health portal

- Farmer registration with the Markfed
- Department of Land Records
- Farmer registrations with the LAMS and PACS society for fertilizer subsidy

7.7.4. IT interventions in Production and Productivity:

- a) Seed certification and verification
- b) Manure / fertilizer quality assessment
- c) Precision farming
- d) Use of IoT
- e) Access to better quality seeds and inputs
- f) Weather based advisory services

7.7.5. IT intervention in Value Chain, Marketing and Logistics:

- a) Produce Traceability
- b) Use of ICT in capacity building and skill enhancement of value chain actors
- c) Tools for business management for Value chain actors
- d) IT based platforms for providing Logistics support (transport, storage, etc) to farmers – like Ola model,
- e) Market based information systems

7.7.6. IT Intervention in Monitoring and Evaluation:

- a) Live transaction recording for concurrent monitoring
- b) IT based program delivery to ensure process compliance
- c) Tagging of moveable / unmovable assets using geo-tagging, RFID, etc

7.8. Monitoring, Evaluation and Learning

The Monitoring and Evaluation (M&E) represents a core component in the implementation of the project. Given the crosscutting and interconnected nature of the project, the project team has proactively engaged in the development of the M&E framework which will be used to inform physical progress and financial disbursement; develop a project baseline to review project implementation; to measure outcomes and impacts aligned to the project development objectives.

7.8.1. Objective of M&E under CHIRAAG

The objective of the monitoring and evaluation system (M&E) is to reinforce the culture of result-based management and provide the basis for evidence-based decision-making processes, of both strategic and operational nature, at all levels including community institutions. The M&E is expected to play the role of a concurrent evaluation cell, using different methods and tools to provide continuous feedback to the project management and other stakeholders on the progress and quality of implementation of Project activities and facilitate strategic and operational decisions, mid-course corrections and adaptations. The system is also required to assess the intermediate results, outcomes and impact of the CHIRAAG Project vis-a-vis its core objectives.

Considering, livelihood projects are much different than standard interventions because of the high degree of heterogeneity and the difficulties involved in measuring non-economic outcomes, it needs to have a good and robust M&E system. Given the scale, diversity and innovative nature of the Project, a comprehensive M&E system that would function both as a decision support system and a social observatory is envisaged. The system would not only assess the intermediate results, but also captures the critical processes of implementation and the livelihood outcomes.

The project will have a rigorous mixed-methods impact evaluation with a robust counterfactual to assess its impact, which will exploit the phased rollout of the project (randomized, if possible). The key innovative agriculture and livelihoods interventions will also be evaluated using small, quick turn-around and rigorous evaluations. This analytical work on quantitative data from GIS-MIS and project evaluation will be complemented by process monitoring, community-based monitoring system, thematic studies and qualitative evaluations.

More specifically, the objectives of the M&E system are to:

- Provide a periodic measure of inputs, activities and outputs in all the project components;
- Assess the process of implementation (conversion of inputs into outputs) and identify factors critical for that conversion;
- Verify the project related assumptions particularly in the early stages of the project;
- Assess the achievement of the project objectives at different points of time and make the primary stakeholders an integral part of the M&E system;
- Facilitate regular management review and adaptation; and
- To assess the outcomes and the impact of the project on different social groups

The guiding principle behind the design of the M&E system is:

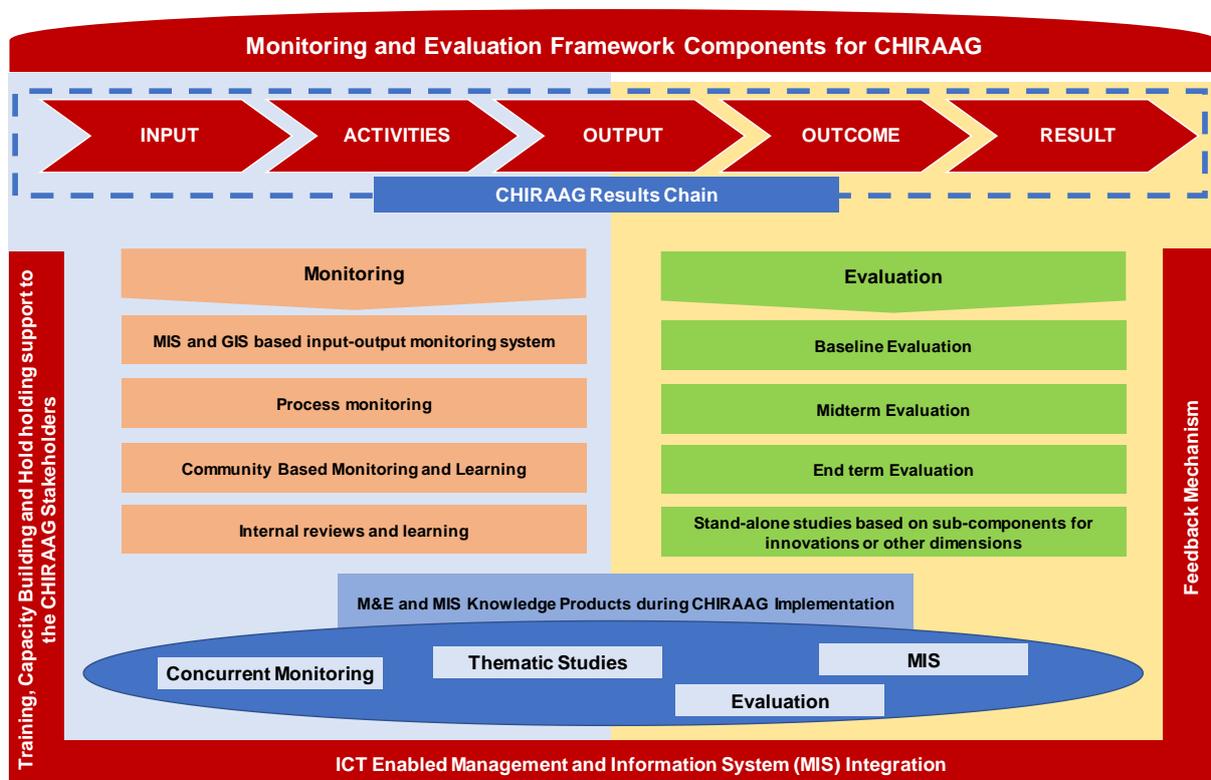
- The system would focus more on intermediate results and outcomes rather than limiting itself to inputs and activities.
- Second, the system would create a dynamic flow of information from M&E to other components envisaged under the project.
- Theory of change (assumptions, inputs, activities, outputs, outcome)

7.8.2. Key Components/Activities of M&E System

The project would built and strengthen the M&E framework comprising of following components:

- MIS and GIS based input-output monitoring system;
- Process monitoring;
- Community Based Monitoring and Learning;
- Internal reviews and learning;
- Impact evaluation involving baseline survey, mid-line and end of project survey;
- Stand-alone studies based on sub-components for innovations or other dimensions

The following figure represents the broad framework for M&E in the project



S.N	M&E Systems	Particulars
i.	Annual Planning	Annual Planning: The CHIRAAG project shall have its exclusive and detailed Project Implementation Plan (PIP) with well laid phasing plan and annual action plan. However, to keep the plan more prudent and dynamic, Annual Action Plan (AAPs)

S.N	M&E Systems	Particulars
		shall be worked out. This will be an annual exercise undertaken jointly with APM M&E under the direct supervision of SPMU.
ii.	Input-output Monitoring or Progress Monitoring	<p>GIS-MIS: The project inputs and related outputs (eg. profile & no. of farmers/cattle owners covered, products, agriculture and horticulture production, farm area coverage, livestock management etc) shall be monitored by the ICT-enabled MIS. Relevant dash boards, MIS analytics and alerts systems would be an integral system of MIS. The system would also capture GIS related information.</p> <p>The system would also generate specific monthly progress reports. These reports and alerts shall be automated and sent to the concerned via electronic mails. Further, Monthly Progress Reports (MPR) shall be auto-generated from MIS on key progress indicators.</p> <p>The information from dash board, MIS analytics would be used for monthly/ quarterly monitoring and ranking of programs.</p>
iii.	Process Monitoring	The processes / interventions planned under CHIRAAG will be monitored as this is critical for the success of the program and if remain un-captured it may compromise with the quality of outcomes. For instance, the TSA will monitor the process of FPO formation and other processes as mentioned in the operational manual of the project, across each component, activity and sub-activity. Process monitoring would be undertaken through a separate Technical Support Agency (TSA) who would only be responsible for this function.
iv.	Community based Monitoring/ Participatory Monitoring	Community based monitoring is a time tested and extremely useful, monitoring system, that not only encourages community to take onus of the program but simultaneously reflects the health parameters of the institution which otherwise is not captured through input and output monitoring. The advantage of this process lies in the large-scale evidences generated in cost effective manner and produced in a transparent manner. This also helps in bringing right focus for discussion in the periodic review meetings.
v.	Progress Review	Periodic monthly review and planning meetings shall be instituted from sub block level to state level. Further, thematic review and planning meetings would also be held at least on a quarterly basis.
vi.	Performance Monitoring	Quarterly performance ranking of blocks and district shall be undertaken. This infuses a sense of ownership and creates healthy competitive environment among units as well project staff. Relevant indicators emerging from the processes shall be used to form composite index. The ranking exercise would be undertaken on a quarterly basis. The output of this would also be used in assessing the annual Performance of the project team and staff.

Given the multidimensionality of the monitoring and evaluation required in CHIRAAG, the engagement requires an end-to-end lifecycle approach to M&E. This end-to-end approach will comprise of the following steps:

- **Designing and implementing an M&E framework** (using Theory of Change (ToC))
- **Concurrent M&E framework:** an overall project specific M&E framework with indicators on all processes, their intended outputs and outcomes.
 - Coordinating and facilitating in implementing the framework strategy to enable field operations by the CHIRAAG community professionals;
 - Creation of report structures that need to be generated at specific periods of time (weekly, monthly, quarterly, etc.);
 - Designing the MIS based on the points above by overseeing the IT team;
 - Help create training workshops for the implementing agencies; and
 - Ensure that reports are generated and sent regularly to relevant stakeholders. In addition, the M&E system should also create a cache of secondary data available on various socio-economic characteristics of the target states/areas, survey relevant literature and use these in the reports.
 - Design and supervise the baseline and mid-line survey
- **Process mapping**
 - Development of tools, systems and protocols for process monitoring
 - Preparation of timely process monitoring reports
 - Tracking of selected beneficiaries

- **Preparation of guidelines, manuals and documentations pertaining to M&E** that can be used by the CHIRAAG community professionals and programme staff
- **Production of analytical deliverables** pertaining to baseline assessment and midline assessment to highlight best practices, leakages and bottlenecks, and subsequently yield recommendations for system improvements
- **Development of capacities of the community professionals** to ensure effective monitoring and sustainability of M&E beyond handholding

In this regard, the engagement requires to hire an M&E agency to conduct all activities across the M&E spectrum right from the development of a framework to the yielding of the evaluation impact report. The project proposes to hire two separate TSA for undertaking the M&E for CHIRRAAG:

- TSA for undertaking Baseline, Mid-line and End-line
- TSA for undertaking Process Monitoring

7.8.3. Technical Support Agency (TSA)

SMPU would contract the services of a Technical Support Agency (TSA) to provide necessary support to establish and implement the monitoring and evaluation systems for the CHIRAAG Project in close coordination with the M&E team of CHIRAAG. The agency would be responsible for preparing the M&E framework for the project and ensuring that the key evaluation activities are being carried out as laid out in the project document. It will also collaborate with the MIS agencies to utilize their datasets to generate preliminary evidence and subsequent analysis.

The agency would be responsible for the following activities:

- **Design of Result Based Monitoring and Evaluation framework:** Design of Result Based Monitoring framework for CHIRAAG with clear yearly milestones against measurable indicators will be followed. This framework would be based on the key indicators used in the results chain and log frame. The agency shall also come up with a comprehensive Monitoring & Evaluation framework for the entire project period covering all the areas of intervention.
- **Impact Evaluation:** The M&E agency will be responsible for conducting baseline, midline and end-line studies for the project. The agency would be responsible for the following:
 1. Prepare the technical design of the impact evaluation using experimental or quasi-experimental methodology; it should include power calculations, sample strategy etc.
 2. Provide technical assistance for preparing the terms of reference of the data collection agencies
 3. Do the preparation work for the baseline data collection such as designing the survey tools, protocols etc.
 4. Supervision of the data collection, which will most likely be conducted using computer-assisted personal interviewing, or CAPI.
 5. Pre-analysis plan which includes detailed methodology of the analysis, indicators, limitations of the evaluations etc.
 6. Clean and analyse data and prepare the technical baseline, midline and end-line report.
- **Process Monitoring:** The agency will also conduct process monitoring from second year onwards with the following activities:
 1. Identify the key processes of the project, develop process indicators, protocol and monitor them to check in quarterly rounds.
 2. Prepare quarterly round reports detailing the key processes observed, adherence and variances in the laid processes and potential implications on the project.
 3. The agency would also identify pool of community cadres based on certain selection criteria and train them on process monitoring activity. These monitors will be doing the process monitoring post the end of the project
- **Thematic Studies and Evaluations:** This will be needed to study the output and outcomes of the intervention in the short term and long term. This would supplement and complement other monitoring components through validation of information on indicators of the results framework,

as well as provide analytical inputs, which go beyond routine monitoring functions. The agency should be able to conceive design of thematic studies, rapid assessments and surveys so as the intermediate level output and outcomes are tracked periodically.

- The external M&E agency will lead in coordination with agencies and institutes of national repute with expertise in areas to be studied would be invited for the planning and conduct of these studies, which will be supervised by the internal M&E team.
- The studies would be in-depth and capture the good practices as well as endemic problems in project implementation.
- In addition to these thematic studies, the project would proactively undertake documentation of processes, case studies, best practices and lessons learnt from project experience.
 - Documentation would also be conducted for internal learning as well as for disseminating project experiences to other stakeholders and would be a continuous process throughout the project duration, with participation from all the project personnel.

Based on the needs of the technical leads, the MIS analytics and the output of the process monitoring studies will be used to identify the areas of focus. Some of the topics could be on – efficiency and viability of organic farming, process improvement and cost effectiveness in setting up of integrated nurseries, increased nutrition and etc. Thematic studies would be taken up only after related interventions have been well laid.

- **Data Analytics:** Agency will collaborate with MIS & GIS agency/consultant who will be hired to analyse the MIS data generated from the fields and prepare regular analytical reports, as per requirements of the stakeholders. These short and concise products should identify lessons and recommend policy and program design changes in real time.
- **Periodic Tracking Surveys:** The agency should design, supervise and anchor rapid surveys, if needed.
- **Other Activities:**
 1. Agency should also strengthen the capacity of the M&E members of CHIRAAG project team in monitoring and evaluation.
 2. Establish and monitor performance benchmarks for all thematic areas.
 3. Facilitate monthly/quarterly performance of districts and thematic areas by preparing district specific reports based on analysis of district level data.
 4. Formulate various standard formats for data collection, field visit assessments, and templates for reporting.
 5. Generate standard and customized reports for decision making and wider dissemination.
 6. Track progress in project implementation along with output and outcomes.

The detailed Terms of Reference (ToR) of the TSA has been provided at annexure

MIS and Geographic Information System (GIS) based Input-Output Monitoring

Purpose

The central purpose of the MIS based input-output monitoring is to track the performance of the Project, using mainly quantitative information (quantitative indicators). The MIS input-output monitoring system would be designed to track information in a dynamic mode on:

- Delivery of project inputs for all sub-components (agriculture, horticulture, forest, fisheries, livestock)
- Progress measured in terms of indicators across all sub-components
- End users making use analytics for the quick, better and informed decision making

The proposed MIS system would facilitate generation of ad-hoc and pre-designed query-based reports on the progress of various components, sub-components and activities at all levels. The system should provide an effective mechanism to track project outputs including performance levels at frequent intervals. The design of MIS would therefore take into account the results framework, financial and

procurement processes of the Project. The system will address the data requirement and feedback needs of all concerned stakeholders. In addition to the data collection, the MIS would also be designed to handle the analytical and reporting requirements of the program. The institution of MIS based input-output monitoring would involve the following key steps:

- **Selection of Technical Agency for MIS and GIS:** MIS Team of CHIRAAG would prepare a TOR for contracting the services of an external Technical Agency which would provide technical support for design and development of different components of the MIS systems based of the requirements of the project.
 - **Requirements assessment:**

The TSA would undertake information and other requirements assessment for all sub-components under CHIRAAG in consultation with PMU and other stakeholders, potential solution providers and other partners. As part of requirements assessment, TA would undertake an assessment of pre-existing ICT and MIS system including hardware, software applications, process work flows, service levels, technical details, interface points.
 - **User Requirements Specification (URS) Document:**

The TA would prepare URS document based on the requirements assessment, specifying necessary reports at every level – terms of each report, information contained, purpose-wise use of each report.
 - **System Architecture and SRS Document:**

After the finalization of URS, the TA would define system architecture and the corresponding hardware and software requirements also taking into account the implementation of GIS. The design would include detailed MIS design incorporating sources and destination of data, performance areas and indicators, collection, recording, aggregation and transmission procedures, data formats and reports, periodicity etc. On the basis of the system architecture and design, a comprehensive Software Requirement Specifications (SRS) would be prepared. The SRS would incorporate deployment plan, support plan, training plan, test management plan and other details required.
 - **Design of Software:**

On the basis of the SRS, the TA would undertake development of application software in close coordination with the MIS team of CHIRAAG and other stakeholders. The software application would be tested, trial-run, pilot tested and installed in a phased manner in tune with the installation of hardware at different levels.
 - **Training:**

The TA would also develop a detailed operations manual and train key persons in installation and management of software. Final version of the application software would also be delivered to the PMU along with the source code. The TA would also provide training of key staff in the use of application software at various levels.
 - **Hosting and Maintenance:**

The TA would undertake hosting of the web-based system by clearly defining the data centre requirements at the state level and provide handholding and maintenance support to the key staff for the duration of the Mission/period requested by PMU or as per the TOR.
 - **Reporting:**

The TA would also design templates of analysis reports for decision support and facilitate generation of reports at different levels. Apart from the standard and query based reports, the DDO would provide for generation of ad hoc reports.
 - **Handover and Transition:**

The TA would be responsible for effective handing over of relevant materials to the PMU. The TA would also define change management procedures associated with the enhancement or modifications of system components that have been developed.

7.8.3.1. *Process Monitoring*

CHIRAAG has several activities that are process intensive especially, process related to establishment of integrated nurseries, formation of Poultry Producer Groups (PPGs), Farmers Producer Organisations (FPOs), Producer Companies (PCs), establishment of poultry mother units, development of community pond for fisheries, Irrigation management etc. It is critical to monitor these processes. The culmination outcomes of the project would depend mainly on the strength of the processes adopted in implementation of key activities.

- Process monitoring is expected to provide information to the project management and other stakeholders to understand how and through what process inputs get converted into outputs, what issues are critical in that conversion process and what action is necessary to increase effectiveness.
- Process Monitoring will help us in identifying whether the activities are being undertaken as defined and outputs obtained as per the input. Once the key processes are identified, these would be monitored on a quarterly basis.
- The process monitoring activity would be started from the second year of project implementation. Initially, the responsibility of conducting the process monitoring would be through the TSA.
- However, later it is envisaged that the community institutions like PGs, FPOs, FIGs would identify and use community monitors who would themselves be doing the process monitoring activity.
- To achieve this, monitors from the community would be identified and trained by the technical support agency for performing process monitoring.
- The TSA would develop, test and train community monitors on standard operating protocols for undertaking process monitoring.

Furthermore, the objectives of process monitoring are:

- To understand how project inputs, result in project outputs and identify issues critical to such conversion;
- To provide information necessary to the management to increase the effectiveness of the project in terms of
 - inclusiveness;
 - sensitivity of the project staff to the needs of the community;
 - identification, financing and implementation of livelihood activities;
 - convergence through other line-departments;
 - to verify the process related assumptions of the project;
 - to assess whether activities are carried out as planned; to generate a learning and feedback mechanism, which would enhance prospects for adaptation especially at the early stages of the project.

Key Elements of Process Monitoring

Process monitoring is:

- A continuous process of observation of project activities;
- Considers perceptions/views of all stakeholders;
- Looks at processes internal and external to the project;
- Considers interactions between stakeholders at different levels (e.g., individual households, community groups, project staff, line departments, etc.);
- Based on learning from the community;
- Adopts a participatory approach; and
- Addresses underlying causes of problems/issues

Process Monitoring and Learning

After the Process monitoring activity is performed upon agreed methodology by the technical support agency, the key findings would be shared with the Project Management Units at block, district and state level as per the agreed protocol. The findings would be disseminated in specially conducted meetings of the project staff at different levels. These meetings would also include community representatives. At the end of each round of process monitoring, the Project units would agree to undertake certain

actions, the progress on which would be monitored by the process monitoring teams in the subsequent rounds.

7.8.3.2. *Community Based Monitoring and Learning*

The fundamental architect and kernel of the CHIRAAG project lies in activities and processes that is deep nested and hosted within community institutions (SHGs, FIGs, PGs and FPOs). Community remains the fulcrum of the project where they realize their innate capability to fulfil their aspirations of leading a dignified and poverty free life. Community participation is an essential prerequisite for strengthening and proper functioning of all community level institutions. It is imperative that these institutions actively play the role of planner, executers and monitors.

The process of “Community monitoring” involves drawing in, activating, motivating, capacity building and allowing the community and its representatives e.g. community volunteers (community cadre) to directly give feedback about the functioning of community institutions. It includes providing inputs for improved planning for the same. This is a powerful tool to know the ground reality and the project progress, from intended beneficiaries and stakeholder’s perspective at the household level. It provides testimony as to whether project activities and investments are seen as being truly beneficial for the beneficiaries and enables the self-assessment of institutional capabilities. It engages participants at all levels to jointly account for success or failures and more importantly, generates authenticated testimony and ongoing lessons for improved implementation.

Based on the effectiveness of Community Based Monitoring System (CBMS) process, it has been appreciated at the national level and has been recommended to SRLMs by Ministry of Rural Development (MoRD). CBMS has also bagged SKOCH Award - 2016 and has been considered by NRLM as one of the 30 best practices under the mission in India.

In CHIRAAG, the internal M&E team (with oversight provided by the external M&E agency and World Bank) will facilitate community based concurrent monitoring, social audit and community evaluation of all the activities by the community, which will ensure that the activities have been implemented as per the agreed processes and without any deviations. Community evaluation will ensure that the intervention gets evaluated from the point of view of the community and inform decisions regarding course corrections in implementation.

Objectives of community monitoring:

- The focus of community monitoring in the CHIRAAG project would be largely on governance of the PGs, FPOs and other institutions formed during the project.
- Feedback on beneficiary selection, coverage & left over along with beneficiary satisfaction.
- Functioning of grievance redressal mechanism and conflicts resolutions.
- Regular and systematic information about community needs, which can be used to appropriately guide the planning process.
- Feedback on key progress and performance indicators.
- Feedback on the status of fulfilment of goals, functioning of various levels community support system, identifying gaps, deficiencies in services and gauging level of community satisfaction
- Facilitate corrective actions in the broader framework of accountability.
- Enhanced learning to community about the best practices and success stories from a new geography.

Steps involved in Community Monitoring:

- **Preparation of format /tools for monitoring:**
The community Monitoring tools would be developed through participative process. In order to acquaint the monitors with the nuances of the process and instruments, field testing of tools shall be done.
- **Identification of community monitors:**

The community monitors would be identified from among the intervention villages. The community monitors can be a producer or cadres who have been part of a PG/FPO for at least a year. They should be possessing basic numeric, written and good oration skills.

- **Training of Community monitors:**

Identified community level monitors would be trained on tools for two days. It includes orientation on the concept and purpose of community monitoring, functioning of institutions and key monitoring indicators.

- **Deployment of Community Monitors:**

A team comprising of two community monitors will be deployed in a new block/panchayat/village (other their own) to assess the quality of functioning of institutions, adequacy and timeliness of inputs and adherence to protocols as laid in the project.

- **Selection of Sample and Sample Size for monitoring:**

Selection of institutions for community monitoring would be done on a sample basis. The sample would be drawn from the MIS system using Random sampling. Based on the sample drawn the institutions would be monitored by the community monitoring team.

- **Data collection:**

After the selection of sample, the data would be collected using the tool developed along with field observation and record verification.

- **Compilation, report preparation and sharing of findings:**

Once the data collection is complete, the observations made by the community monitors would be shared in the debriefing event organised at the district level by District Project Management Units (DMMUs). The findings would be shared with all the stake holders involved in form or report and analytics.

- **Frequency of Community Monitoring:**

The CBMS would be conducted on a quarterly basis. During each quarter, the action taken report would be prepared and would be reviewed again and the progress measured.

A workshop at the state level would be conducted that would help in designing the manual, tools and implementation architecture of CBM for the CHIRAAG project. However, it is strongly felt that the community monitoring activity should be embedded with the existing architecture of PG/FPOs and a committee should be constituted for monitoring

7.8.3.3. *Internal reviews and learning*

Regular conduct of internal reviews jointly by community institutions and project staff would facilitate resolution of several community level as well as project related problems. Therefore, it is proposed to institute an internal review system at federation, block and district levels. The internal reviews are ideally held at least once in a month on the basis of a pre-determined agenda. The monthly progress report generated through the MIS, the findings of the process monitoring, community-based monitoring as well as CBO self-assessment could be discussed as part of internal reviews.

Other Review Mechanisms: The last mile delivery of the program is done by the block teams. Hence, it is imperative that a vibrant direct planning, monitoring, review and handholding mechanism exists starting from the policy makers to the implementers. A series of planning, review mechanisms exists at all levels catering to various facets of the program design. Various theme wise monthly and quarterly review meetings shall be held.

Modality: Apart from the above review mechanism also to do a better assessment of the performance of the districts and blocks in the project of CHIRAAG, the following activities are incorporated:

- **Field Visits:** For assessing the performance of districts & blocks, each thematic (agriculture, livestock, horticulture, forest, fisheries) unit of the project shall dedicate from 21st day of every month till the last day of the month for field visit. So the findings from the field visit observation can be documented and provided as a feedback to respective district/blocks on areas in which performance needs to be much be and to rectify those areas in which improvement is required.

- **Joint Missions:** Joint missions shall be undertaken by SPMU members along with representatives from line departments, TSA representatives or along with representatives from WB.
- **Workshops:** Thematic workshops shall be conducted on a regular basis to provide a platform to all the districts/blocks under the project as open forum to discuss their issues, what other districts/blocks are following, what changes the other blocks require and any such discussions.

Feedback Mechanism

A method of feedback mechanism shall be followed as:

- **Field Visit Findings:** Each domain in the project shall dedicate their day from 21st to 30th of every month for their field visit to the project blocks/districts. Field visit is the actual method to validate the already recorded data with the MIS unit. The field visit findings shall be analysed and matched with the MIS records. This not only helps in progress tracking of the project in the concerned area but also in providing feedbacks to the particular area/district and the thematic units at operation. In this way field visit findings work to observe whether all activities in the project are taking place as scheduled or not.

Observations: The concerned official shall record all observations in the project which would be later validated with the recorded data. Format to capture data and provide on spot feedback to the implementing unit shall be developed by TSA. Further, all such observations shall be collated quarterly and taken up for discussion in district and state level monthly meetings.

7.8.4. Results Chain and Results Framework

The Results Chain for CHIRAAG has been extensively iterated for each component and sub-component pertaining to the project interventions. Each results chain details the activities, sub-activities alongside expected outputs and outcomes arranged in logical order, demonstrating how each proposed intervention will lead to the achievement of overall project development objectives. Importantly, there is an accompanying set of progress indicators, which provides the basis for measuring the outputs/outcomes including both quantitative and qualitative measures.

7.8.4.1. *Impact evaluation*

The objective of impact evaluation is to establish the “net” contribution of the project. Measuring the impact would involve comparing the situation of the HHs “before” and “after” with a robust counterfactual. The agreed performance indicators in the Results Framework would be central to the assessments and guide development of methods, tools and analysis protocols. Attribution of benefits to project interventions is possible with selection of control or comparison groups to provide the counterfactual. In addition to capturing household level outcomes, impact evaluation would also assess the group level and community level changes brought about by CHIRAAG.

Given the duration of the project, impact evaluation would be carried out in three stages through:

- **Baseline survey:** The baseline survey would capture the pre-project livelihood situation of the potential target community vis-à-vis the control group in all its dimensions.
- **Mid-term survey:** The Mid Term Review/Survey is primarily done to identify challenges and outline corrective actions to ensure that a project is on track to achieve maximum results by its completion. This would include an impact assessment of the project to date, and also focus on procedures, implementation processes and recommend adjustments in the project design and / or implementation arrangements to overcome identified bottlenecks
- **End-Term Assessment (ETA)/evaluation:** The second major impact evaluation, the ETA would be a comprehensive overall impact assessment including quantitative and qualitative assessment of progress against project development objectives. This will be undertaken at the end of the project with the goal of assessing project performance and determining the outcomes and impacts stemming from the project. The ETA would provide judgments on actual and potential project impacts, their sustainability and the operational efficiency of implementation. The ETA would also identify lessons of operational relevance for future project formulation and implementation.

The following table represents all the three impact evaluation activities to be undertaken in CHIRAAG

ME&L Components	Information collected on	Instrument	Type of data & Source	Frequency	Responsibility
Baseline	Determining pre project conditions to establish the net contributions of the project to the sustainable livelihoods of the targeted families "before" and "after" the project and "between" the project and control areas.	Baseline study A. Hypothesis document that would identify key hypotheses regarding demand for different types of project interventions by specific groups as well as the impact of such interventions and the methodology to measure them B. Sampling document- that would describe the methodology adopted for baseline survey including control and surveyed areas, justification for choosing samples and size of samples, weightage etc. C. Questionnaires for households, beneficiary self-help groups, local governments and village leaders with retrospective questions wherever appropriate.	Quantitative and qualitative	Before project	External Consultants through the CPs and staff who are well trained & oriented by the M&E agency to carry out the assigned task
Impact Evaluation	Project impacts and outcomes and overall PDO achievement	Impact study with impact and outcome indicators as a point of reference to establish the net effect of the project	Quantitative & Qualitative	Mid term and End Term	External Consultants through the CPs and staff who are well trained & oriented by the M&E agency to carry out the assigned task

Stand-alone studies based on sub-components for innovations or other dimensions

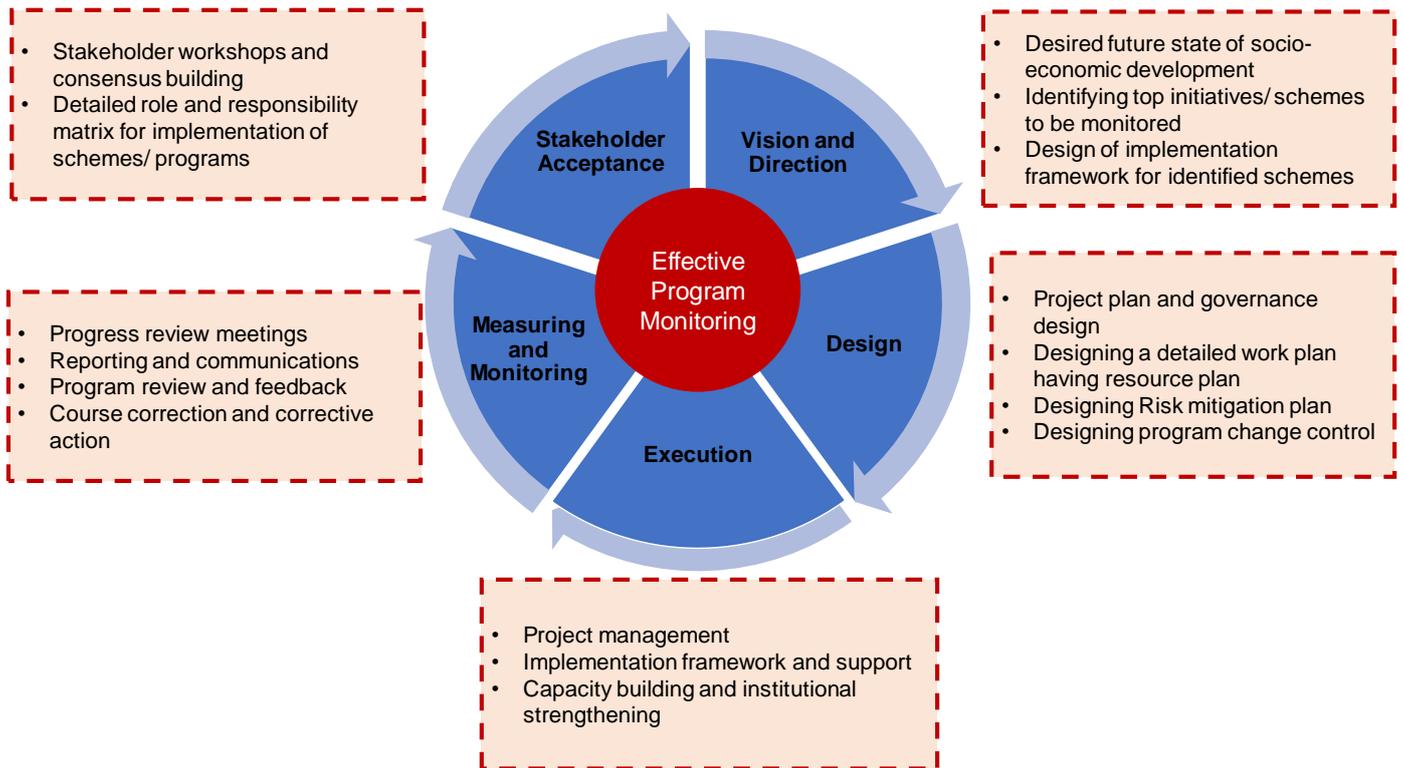
A few stand-alone studies/ thematic studies would also be commissioned as part of the evaluation component to assess the impact of specific innovations and interventions. Further, scope for some experiments/innovations that would be used to test certain ideas (such as establishment of a cattle feed plant), albeit on a small scale and using inexpensive methods is also being proposed.

7.8.4.2. Implementation Arrangement

M&E responsibilities would be shared engaging an external M&E agency which is hired across all the project units along with the staff. The M&E agency will coordinate with M&E specialists across the project, namely:

- **The internal M&E State Team;** SPM M&E, APM MIS, APM M&E, PE Knowledge Management
- The designated M&E staff members at the District Level; Manager MIS and M&E
- The designated staff at the block level and up to village level (The Community Professional trained by the agency may be involved so as to enhance their capacity for carrying out monitoring activities of the project once the assignment period is over for the external monitoring agency); BPM, MIS and M&E Support Staff, Community Coordinators
- The Community Monitoring system will be evolved relevant to the project objective.

Implementation framework for effective program monitoring



To carry out the M&E activities outlined above, the team would have the following implementation architecture:

- The project team will be led by an existing State Program Manager (SPM)-M&E.
- The external M&E agency Technical Support Agency (TSA) will be provided support by M&E State Team and the District and Block staff in carrying out the supporting activities such as:
 - Design, development, operation and maintenance of project MIS;
 - Capacity building in M&E techniques and applications,
 - Sampling design and field surveys, the design of M&E instruments, training, data collection, validation and analysis would also be provided by both the external agency and project.
- The SPM-M&E would be supported by one APM M&E and APM MIS CHIRAAG.
- At the district level, it is proposed to have one District M&E & MIS Officer and a Data Entry Operator (DEO).
- To ensure seamless flow of timely data, DEOs would be placed for every 250-300 farmers.
- Technical specialists at the District and Block levels will participate in the review of the correct information.
- The MIS team would comprise of existing PM – IT & MIS along with one consultant for GIS and one Program Executive.
- To develop the MIS system for CHIRAAG, a technical agency would be engaged as outlined above.
- A full-time GIS consultant would be engaged to implement the GIS based MIS system.
- As the MIS would be largely tablet based, which will help in capturing data directly at the field level, Community Coordinator, the project cadre (one over 6 village) would be utilized for this purpose.

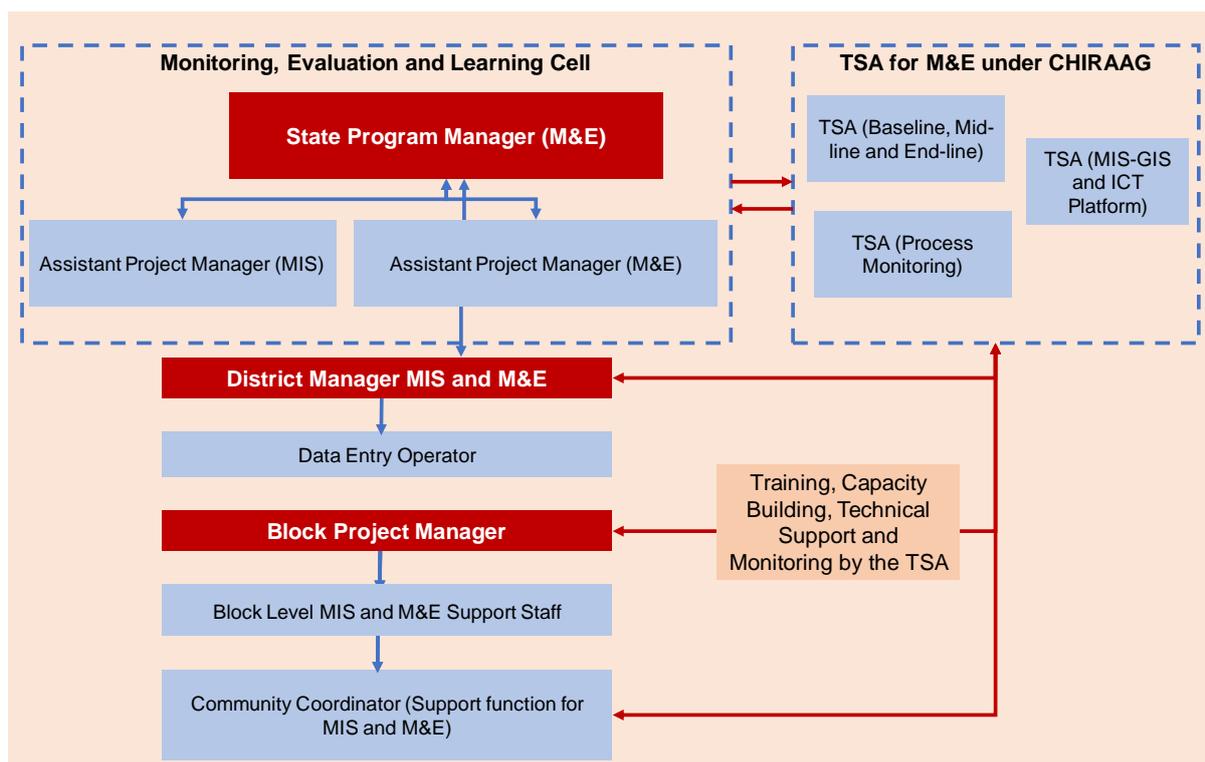


Figure 1: Implementation Architecture Team Composition

Sr.No.	Designation	Responsibility
1.	SPM (M&E)	<ul style="list-style-type: none"> • Coordination with TSA other verticals for implementation of M&E activities • Guide the respective APM and PE on implementation of activities related to M&E, MIS and Knowledge Management • Facilitating reviews, anchoring studies and periodic evaluations
2.	APM (M&E)	<ul style="list-style-type: none"> • Overall implementation of the M&E activities • Devising monitoring strategy for the project staffs • Closely work with M&E team at district level and below • Organizing regular reviews and meetings and disseminate findings/ reports to all concerned • Coordinate with TSA in designing overall evaluation framework for the project and getting it executed through the TSA
3.	APM (MIS)	<ul style="list-style-type: none"> • Coordinate with Technical Agency for rolling out of MIS of CHIRAAG
4.	PE (MIS & Knowledge Management)	<ul style="list-style-type: none"> • Support the MIS and M&E team in day-to-day activities necessary for implementing MIS and M&E.
5.	GIS Coordinator	<ul style="list-style-type: none"> • Implementation of GIS based MIS system • Mapping of progress made in implementation of key activities

Sr.No.	Designation	Responsibility
5.	District Manager - M&E and MIS	<ul style="list-style-type: none"> • Implementation of M&E activities at District level • Regular monitoring, review of the ongoing activity • Timely capture of data in MIS
6.	Block Level MIS and M&E Support Staff	<ul style="list-style-type: none"> • Entry of data generated at field level from various components
7.	Community Coordinator	<ul style="list-style-type: none"> • Data capture through Tablet Based MIS directly at the field level.

The different M&E participants and products to be generated during the life cycle of the M&E in CHIRAAG are summarized in the table below:

Purpose	Project Management	Project Internal M&E Team	External M&E /MIS Agency
<p>Concurrent Monitoring to assess implementation on progress and process</p>	<ol style="list-style-type: none"> 1. PMU is responsible for monitoring the project, using dedicated internal M&E team and External M& E firm which is hired for the project. 2. The PMU contracts and manages external contractors, as required for: <ol style="list-style-type: none"> I) M&E II) MIS III) Impact Evaluation Thematic Studies Internal and External Audits (including social audits) IV) M&E Capacity Building 3. The PMU produces “Action Taken Reports” on issues raised by the internal and external M&E assessments to inform management decisions. 	<ol style="list-style-type: none"> 1. Design, implement and evolve the M&E/MIS system internally, assisted by external M&E agency. 2. Guide and support implementation units to finalize and implement monitoring plans. 3. Oversee analysis and production of quarterly progress reports (QPRs). 4. Provide regular updates for regular review meetings by PD/APD and stakeholders 	<p>Baseline & Review</p> <ol style="list-style-type: none"> 1. At Project startup: Collect baseline information for progress and intermediate results. <p>Independent review of QPRs (Half-Yearly)</p> <p>Implementation of MIS</p> <p>Design, train staff and construct & troubleshoot the implementation of the MIS system, in close consultation with Project staff, all stakeholders and providers & users of M&E/MIS information & products.</p> <p>Third Party Audit</p> <p>Third party monitoring and audit teams: Undertake sample audit of project records to verify regular monitoring reports, and highlight any issues for PMU attention.</p> <p>Thematic Studies:</p> <p>Conduct studies, submit reports & detailed recommendations to PMU for Action.</p>
<p>Evaluation of project, Outcomes, Impacts and Strategies</p>	<ol style="list-style-type: none"> 1. Management reviews evaluation reports and makes mid-course adjustments, based on evidence of performance. 2. Review end-term evaluation report and finalize the Projects ICR 	<ol style="list-style-type: none"> 1. Agree with internal M&E team on scope and detail of evaluation survey & methodology; 2. Supervise the implementation of evaluation studies; 3. Utilize the findings for drafting the end-term ICR 	<p>Evaluation Team</p> <ol style="list-style-type: none"> 1. Undertake baseline and mid-term surveys and studies 2. Review Evaluation baseline survey at start-up of selected batches of Project areas and control groups 3. Undertake any supplementary work as needed to complete this exercise; 4. Conduct panel mid-term studies 5. To assess progress on Project Outcomes

			<p>(targeted changes in behavior or situation of beneficiaries achieved in the project period) and impacts (wider results directly attributed to the project);</p> <p>6. Build the capacity of the Project team to conduct end-term study to assess project outcomes and Impacts at the end of the Project implementation period.</p>
<p>Learning (M&E Reports) & Thematic Studies (TSs).</p>	<p>1. Quarterly: Review and discuss the findings and implications of the consolidated M&E/MIS reports with Internal and External M&E teams.</p> <p>2. Commission Thematic Studies and take Management decisions and actions related to the findings.</p>	<p>1. Units review implementation issues and design the scope of Thematic Studies to be undertaken;</p> <p>2. Contract External consultants to undertake TSs, including: Case Studies on best practices/failures and lessons learnt about different project activities; Scoping studies on technical feasibility or viability of proposed and ongoing programs; Enterprise models and profitability/sustainability profiles; Successful convergence with government departments, line agencies and other stakeholders.</p>	

The following table represents the KRAs for the M&E Team

S. No	Indicators	Roles
1	Review and Action (enable decision making processes)	<ul style="list-style-type: none"> • Periodic analysis of data based on project indicators and circulation of the same (both downward and upward to all concerned stakeholders) • Contributing to the Quarterly Report in the form of case studies , process documentation, impact/assessment studies & learning notes • Participating in stakeholder meetings and conducting field visit for troubleshooting and information channelling
2	Learning Management (Knowledge & database management system)	<ul style="list-style-type: none"> • MIS facilitation and ensuring the use of MIS for enhanced decision support systems • Conduct pilots, process monitoring, impact assessments, creation of control groups, document best practices and dissemination forums (with IEC team) • Create a useful data base- to cater for all stakeholders with depth of insights • Seamless integration of the data with all stakeholders
3	Quality Assurance	<ul style="list-style-type: none"> • Developing mechanism for regular audit/ grading and rating of TPs and proper dissemination of the findings • As a part of quality control team ensuring standardized processes of intervention and outputs
4	Partnership / Stakeholder Management	<ul style="list-style-type: none"> • Develop and execute M&E plan across executing/ implementing partners • Manage various stakeholders enabling the system like IT, L&D, etc.
5	Support & Coordination	<ul style="list-style-type: none"> • Coordinate with all stakeholders and with ministries in terms of information related to data and results • Conduct review meetings, audits, and flagging issues

7.8.4.3. *The Results Framework and Monitoring for the project is detailed below*

Project Development Objective: to improve income opportunities and the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.							
Project Development Objective Indicators							
Indicator Name	Baseline	Cumulative Target Values (unless, indicated otherwise)					
		YR1	YR2	YR3	YR4	YR5	End Target (YR6)
Beneficiary households with intensified and diversified sources of income (Number)	0	0	3600	22500	48000	75000	108000
Of which, SCs and STs (Percentage)	TBD	0	40	50	60	60	60
Beneficiary households with increased number of food groups available at the household (Number)	0	0	3600	22500	48000	75000	108000
Of which, SCs and STs (Percentage)	0	0	40	50	60	60	60
Farmers reached with agricultural assets or services (CRI , Number)	0	4020	31920	99600	159600	199200	240000
Of which, female farmers (CRI , Number)	0	201	4788	34860	63840	99600	120000
Of which, SCs and STs (Number)	0	900	9600	37500	72000	105000	126000

Project Development Objective: to improve income opportunities and the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.							
Intermediate Results Indicators							
		Cumulative Target Values (unless, indicated otherwise)					
Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	End Target (YR6)
Component 1: Community empowerment and institutional strengthening							
Village development plans (Number)	0	150	500	1000	1000	1000	1000
Beneficiary livelihood groups which have at least 50 percent membership from SC/ST households (Number)	0	66	150	500	1000	1000	1000
Beneficiary livelihood groups which have at least 25 percent women members (Number)	0	33	90	350	800	900	1000
IFS operationalized which include nutrition related SBCC sessions (Percentage)	0	0	20	30	50	75	85
Component 2: Integrated food and nutrition supportive agriculture systems							
Beneficiary households supported with sustainable water management and soil improvement practices (Number)	0	300	10275	21375	22050	22050	22050
Increase in land area under production of more nutritious crops among beneficiary households (Percentage)	TBD	10	10	20	20	30	30

Project Development Objective: to improve income opportunities and the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.							
Intermediate Results Indicators							
		Cumulative Target Values (unless, indicated otherwise)					
Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	End Target (YR6)
Beneficiary individuals which have adopted resilient and improved technologies and practices (Number)	0	0	6750	36900	57600	81000	90000
Of which, women beneficiaries	0	0	1013	7380	14400	24300	27000
Beneficiary households adopting at least two activities of integrated farming systems (Percentage)	0	0	10	15	20	25	30
Beneficiary individuals with improved <i>Badis</i> - backyard garden production (Number)	0	2700	22500	73800	144000	144000	144000
Of which, women beneficiaries	0	810	9000	36900	86400	86400	86400
Component 3: Value addition and access to markets							
Common Hiring Centers supported with value addition and processing infrastructure (Number)	0	53	175	350	350	350	350
Farmer Producer Organization established, with business plans, and financing (Number)	0	1	6	17	25	28	28
Farmer Producer Organizations directly engaged in aggregation, grading, and/or primary processing (Number)	0	0	0	6	11	14	14
Market linkage partnerships established (Number)	0	1	4	4	5	10	10
Component 4: Project management, monitoring & evaluation, and knowledge management							

Project Development Objective: to improve income opportunities and the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.							
Intermediate Results Indicators							
		Cumulative Target Values (unless, indicated otherwise)					
Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	End Target (YR6)
Partnerships with knowledge organizations (Number)	0	1	2	3	3	3	3
Grievances registered related to delivery of project benefits that are resolved (Percentage)	0	100	100	100	100	100	100
Decision Support System for Agriculture Department established (Yes/No)	No	No	Yes	Yes	Yes	Yes	Yes
Policy note developed on promoting and financing Farmer Producer Organizations (Yes/No)	No	No	No	Yes	Yes	Yes	Yes

Monitoring and Evaluation Plan				
PDO Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Beneficiary households with intensified and diversified sources of income (Percentage) <i>(Disaggregated by social category)</i>	This indicator measures the percentage of beneficiary households with an increase in intensification and/or an increase in diversification of their sources of income. A household is considered to have <i>increased intensity</i> of income sources if a household has increased land farmed or input use to agriculture field crop production or horticulture, increased herd size of a type of livestock, increased pond area for aquaculture, or increased collection of agroforestry commodities. A household is considered to have <i>increased diversity</i> of income sources if a household has diversified production either across livelihood groups or within livelihood	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries

	<p>groups. Diversification across livelihood groups is defined as engaging in at least one other agriculture or allied subsector (i.e. agriculture/field crop production, horticulture, livestock rearing, aquaculture, agroforestry, or wage labor in a farm or non-farm sector). Diversification within livelihood group is defined as an increase in crop diversification (measured as a decrease in the Herfindahl-Hirschman index, which is based on land area allocated to different crops), an increase in the type of livestock being reared or the type of fish species being cultured, or an increase in the type of agroforestry commodities being collected.</p>			
<p>Beneficiary households which have increased the number of food groups available at the household (Percentage)</p> <p><i>(Disaggregated by social category)</i></p>	<p>This indicator measures the percentage of beneficiary households with an increase in diversity of food groups available at the household level, whether produced or purchased. Food items are categorized based on the 12 food groups listed in the Household Dietary Diversity Score (HDDS). A household is considered as having increased the number of food groups available if the household has increased the diversity of available foods by at least one more food group.</p>	<p>Every six months</p>	<p>MIS, field visits, baseline, end line survey</p> <p>Reports, field visits, desk reviews, meetings</p>	<p>PMU, relevant line ministries</p>
<p>Farmers reached with agricultural assets or services (CRI, Number)</p> <p><i>(Disaggregated by gender and social category)</i></p>	<p>This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" include: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops). Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural</p>	<p>Every six months</p>	<p>MIS, field visits, baseline, end line survey</p> <p>Reports, field visits, desk reviews, meetings</p>	<p>PMU, relevant line ministries</p>

	activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.			
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Monitoring and Evaluation Plan				
IRI Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Village development plans (Number)	This indicator measures the number of village development plans approved and financed.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Beneficiary livelihood groups which have at least 50 percent membership from SC/ST households (Number)	This indicator measures the number of project-supported livelihood groups which have at least 50 percent of membership consisting of vulnerable households. Livelihood Groups (LG) are informal groups promoted under CHIRAAG project for planning, implementation and monitoring of project activities. LGs will be comprising of households as its' members and will be governed by a sound governance mechanism to be defined in the Community Operations Manual (COM). The vulnerable households are defined as those with single member, elderly persons, acutely sick persons, disabled persons, pregnant women and the SC /ST households.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Beneficiary livelihood groups which have at least 25 percent women members (Number)	This indicator measures the number of project-supported livelihood groups which have at least 25 percent of membership consisting of women. Livelihood Groups (LG) are informal groups promoted under CHIRAAG project for planning, implementation and monitoring of project activities. LGs will be comprising of households as its' members and will be governed by a sound	Every six months	MIS, field visits, baseline, end line survey	PMU, relevant line ministries

Monitoring and Evaluation Plan				
IRI Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
	governance mechanism to be defined in the Community Operations Manual (COM).		Reports, field visits, desk reviews, meetings	
IFS operationalized which include nutrition related SBCC sessions (Percentage)	This indicator measures the percentage of IFS which are established in the project area and operationalized and includes nutrition-related SBCC (Social Behavior Change communication) sessions including diet diversity, maternal, infant, and young child feeding (MIYCF), traditional recipes, water, sanitation, and hygiene (WASH), and maternal and child health. The IFS are positioned with master trainers and are intended to conduct sessions for all the households with farmers and the other vulnerable groups.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Beneficiary households supported with sustainable water management and soil improvement practices (Number)	This indicator measures the number of beneficiary households supported with sustainable water management and soil improvement practices.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Increase in land area under production of more nutritious crops among beneficiary households (Percentage)	This indicator measures the average increase in land area under production of more nutritious non-paddy crops for beneficiary households, with a separate measure for increase in land area for millets, pulses, fruits, and vegetables (underground vegetables and trellis vegetables). This will capture increases both at the extensive margin (households which were not devoting land to a certain crop) and at the intensive margin (households which increased the land devoted to a certain crop). For a given household, this indicator will measure the average across seasons in a year. The increase will be	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries

Monitoring and Evaluation Plan				
IRI Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
	measured as the cumulative annual increase relative to the baseline value.			
Beneficiary individuals which have adopted resilient and improved technologies and practices (Number) <i>(Disaggregated by gender)</i>	This indicator measures the number of beneficiary individuals which have adopted new technologies and practices derived from various project-provided training such as integrated natural resource management, integrated farming system, climate smart agriculture, nutrition, integrated nutrient and pest management, crop specific package of practices, and other extension services.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Beneficiary households adopting at least two activities of integrated farming systems (Percentage)	This indicator measures the percentage of beneficiary households with integrated production systems for agriculture and allied primary sector activities. A beneficiary household is considered as having a diversified or integrated production system if the household is engaged in at least two of the following activities: agriculture (field crop production in kharif and rabi season), horticulture (vegetable production in Badis for at least 7 months), livestock rearing (at least one type of livestock), aquaculture (at least 6 months in ponds/hapas), or agroforestry (at least 2 types of trees planted).	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Beneficiary individuals with improved <i>Badis</i> - backyard garden production (Number) <i>(Disaggregated by gender)</i>	This indicator measures the number of beneficiary individuals with improved <i>Badi</i> (backyard garden production). Improved <i>Badi</i> production includes the use of better quality inputs, the adoption of improved package of practices, and the implementation of year-round production (defined as having at least 8 months of backyard garden production in a given year).	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Common Hiring Centers supported with value addition	This indicator measures the number of Common Hiring Centers supported by the project which are receiving infrastructure	Every six months	MIS, field visits,	PMU, relevant line ministries

Monitoring and Evaluation Plan				
IRI Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
and processing infrastructure (Number)	investments for primary processing and post-harvest handling and marketing.		baseline, end line survey Reports, field visits, desk reviews, meetings	
Farmer Producer Organization established, with business plans, and financing (Number)	This indicator measures the number of Farmer Producer Organizations established under the project and are considered functional.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Farmer Producer Organizations directly engaged in aggregation, grading, and/or primary processing (Number)	This indicator measures the number of project supported Farmer Producer Organizations which are engaged in aggregation, grading, and/or primary processing activities.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Market linkage partnerships established (Number)	This indicator measures the number of partnerships formed, for both inputs and outputs, between project-supported Producer Collectives (FPOs/LGs) and various value chain actors. These actors could be private agencies, NGOs, individuals (in the case of large traders), or APMCs. This would be measured as the number of MoUs, direct partnerships, or linkages developed.	Every six months	MIS, field visits, baseline, end line survey	PMU, relevant line ministries

Monitoring and Evaluation Plan				
IRI Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
			Reports, field visits, desk reviews, meetings	
Partnerships with knowledge organizations (Number)	This indicator measures the number of partnerships that the PMU has established via MOUs with knowledge organizations. This can include, Viz., Central Food Technology Research Institute (CFTRI), Mysore; National Institute of Food Technology, Entrepreneurship and Management, Sonapat; Bio-diversity International; International Crop Research Institute for Semi Arid Tropics (ICRISAT), Hyderabad etc.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Grievances registered related to delivery of project benefits that are resolved (Percentage)	This indicator measures the transparency and accountability mechanisms established by the project so that the target beneficiaries have trust in the processes and are willing to participate, and feel that their grievances are attended to promptly. Thus, the project monitoring system should provide information on the number of complaints received against the number actually resolved.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries
Decision Support System for Agriculture Department established (Yes/No)	This indicator measures whether a Decision Support System for the Agriculture department has been established and rolled out to users.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries

Monitoring and Evaluation Plan				
IRI Indicator Name	Description (indicator definition etc.)	Frequency	Data Source / Methodology	Responsibility for Data Collection
Policy note developed on promoting and financing Farmer Producer Organizations (Yes/No)	This indicator measures whether a policy note has been developed on the promotion and financing of Farmer Producer Organizations.	Every six months	MIS, field visits, baseline, end line survey Reports, field visits, desk reviews, meetings	PMU, relevant line ministries

8. Component 6- Contingent Emergency Response Component

Disaster management (or emergency management) can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies in particular preparedness, response and recovery in order to reduce the impact of disasters¹⁵⁸. Chhattisgarh state, owing to its geographical location, is susceptible to few natural calamities and it's pertinent to highlight them. From the selected CHIRAAG districts, Bastar is highly vulnerable to lightning, whereas Korba, Mahasamund and Raigarh other than Bastar are susceptible to the effects of lightning in the state. Since, Chhattisgarh is home to forest and wildlife, disasters occurring due to snake bites are also very common in the state in Surajpur, Balrampur, Jashpur, Surguja, Korba, Raigarh, Bilapur, Janjgir-Champa, Rajnandgaon and Bastar. Of these, Bastar district is a part of selected CHIRAAG district. Additionally, among the selected blocks, Jagdalpur, Narayanpur, Sukma, Bijapur, Dantewada and Kanker are highly vulnerable to floods.

The Disaster Management Act, 2005 (DM Act 2005) provides institutional and coordinating mechanisms for effective disaster management at national, state, district and local level. Disaster could be caused by natural or man-made activities; this creates serious disruption in the functioning of a society, thereby causing massive harm to humans, physics or the environment.

The social and economic protection systems are required to be developed for mitigating the impact of any potential disaster. Thus, the project provisions for the Contingent Emergency Response Component, which can be invoked at the time of critical emergency like COVID. The emergency would be caused by natural or human activities. The idea is to cover broad set of activities which significantly affects the social and economic wellbeing of the state. The CERC component would stand in good stead for provisioning the disaster response. This zero-budget project component will ensure implementation flexibilities during future emergencies and disaster

¹⁵⁸ <https://revenue.cg.nic.in/CGSDMA/index.html#>

9. Environment and Social Management Framework (ESMF)

The implementation of the activities will follow the environment and social management process outlined in this chapter. Further details are available in the full ESMF disclosed under the project.

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9.8.5. Introduction

This chapter provides the framework that will help identify and address the potential environmental and social impacts or risks of the sub projects throughout the project cycle. The objective of ESMF is to help the project in taking informed decisions and mainstream environmental and social concerns in the sub project design. The objectives of the Environmental and Social Management Framework (ESMF) are as under:

- Support the integration of environmental and social aspects into the decision-making process at all stages related to planning and design by identifying, avoiding and/or minimizing adverse environment and social impacts early-on in the project cycle.
- Enhance the positive/sustainable social outcomes through improved/appropriate planning, design, and implementation.
- Build the capacity of project and implementation staff to take-up and coordinate responsibilities related to the application and implementation of the ESMF, including preparation of Environmental and Social Assessment and Management Plans if needed.
- Provide guidelines and procedures for further consultations during project implementation.
- Provide systematic guidance to address potential risks and to enhance quality, targeting, and benefits to the communities.
- Ensure that stakeholders, irrespective of whether they benefit from or are adversely affected by the project interventions, are well informed and are able to participate in the decision-making process.
- Support compliance with applicable legal/regulatory requirements of Government of India and State government; as well as with the requirements set forth in the relevant Bank policies.
- Minimize adverse impacts on the environment, community, cultural property, and other common property resources.

ESMF is a tool for CHIRAAG to screen the subprojects to decide on including/excluding them; to categories based on defined criteria and to decide on how to manage these using either full-fledged ESIA's or ESMPs or using Generic ESMP. ESMF describes the process, institutional mechanism, and budget to undertake screening, scoping, assessing and incorporation of mitigation measures during the project cycle involving a) Sub-project Initiation, b) Sub-project Preparation, c) Sub-Project Implementation, d) Monitoring and Evaluation. This also includes guidance on (i) Tribal Development Planning (TDP); (ii) Gender Action Plan (GAP); (iii) labour Management Procedure, and (iv) consultations.

The ESMF adoption framework is presented in the following Figure 4; which is discussed in detail in the following sub-sections.

Process Flow

The section describes the process that needs to be followed and activities that needs to be carried out from sub project identification to implementation and monitoring protocol.

**SubProject
identification/
Initiation**

- **Use of Negative List and Environment and Social Screening**
- SubProject Tracking, Filling the Screening format, Identification of Risk /Impacts
- Categorisation of the subproject as per extent/severity of environmental and social impacts
- Use of Negative List

**SubProject
Preparation**

- **Impact Assessment**
- Low Risk: Develop and implement Generic mitigation / monitoring measures, Apply environmental conditions in contract documents
- Moderate Risk: Develop specific mitigation / monitoring measures for the project, Apply environmental conditions in contract documents
- High Risk: Carry out detailed ESIA, Develop project specific mitigation / monitoring measures, Apply environmental conditions in contract documents

**SubProject
Appraisal
& Approval**

- **Environmental and Social Review and Approval**
- ESIA and mitigation measures prepared by project; reviewed and approved by Environmental and Social Specialists, (also incorporating comments/approval of the World Bank), incorporate suggestions, approval and disclosure requirements
- Applicable approvals / permits /clearances from various agencies for the project
- Apply environmental conditions / ESMP in contract documents, allot budget
- Approval for the SubProject

**SubProject
Implementation**

- **Implementation of Environmental and Social Mitigation Measures**
- Arrange tools/facilities to Implement mitigation measures, Monitor, Report and Correct
- Training, Capacity Building, Cross-learning for Staff, Project management support agencies, Communities in implementing mitigation measures

**SubProject
Monitoring**

- **Environmental and Social Monitoring**
- Periodic Monitoring to ensure compliance to mitigation measures, regulatory aspects, pollution abatement
- Database on ESIA's for Projects and ESMP implementation
- Carry out annual Third Party environmental and social audits for subprojects

Figure 5 Process flow of ESMF

ENVIRONMENT AND SOCIAL BASELINE

Environment Baseline:

Located in the central part of India, Chhattisgarh has an area of 135, 190 km and under falls under the East Deccan physiographic zone. The state is divided into three agro-climatic zones viz, Chhattisgarh plains, Bastar plateau and Northern hills covering 51.0%, 28.0% and 21.0% of geographical area, respectively. The CHIRAAG project is proposed to be implemented in all three agro-climatic zones. Chhattisgarh some of the densest forests in India, with forests covering around 45% of the state's geographical area. The forests are home to over rich wildlife and above all over 200 non-timber forest products (NTFPs) in the form of fruits, seeds, leaves, barks, roots, flowers, and grasses, etc., including an entire plant of medicinal herbs/shrubs. Some key NTFPs are Tendu leaves and Gums, Babool and Khair, sal seed, Harra, Tamarind, Chironjee Guthli, Lac, and Mahua seed. One third of Chhattisgarh's population is of tribes, mostly residing in dense forests of North and South hilly areas. Around 70% of the agriculture area in Chhattisgarh is rainfed, with paddy being the main crop. It is estimated that about 75% of the gross sown area of the state can be irrigated with the proper use and management of available water resources, however, the total irrigated area under all crops for Chhattisgarh is 31.2%, which is lower than the national average of 48%. Paddy maize, black gram, pigeon pea, ground nut, soy bean & minor millets are the major crops in selected blocks as per area under cultivation in Kharif stream. Wheat, maize, Rape-seed & mustard, Horse gram and lathyrus are the major crops grown in the selected blocks in Rabi seasons. Sugar cane followed by ground nut and maize are the major Zaid (summer) crops in the selected blocks. Pesticide and fertilizer consumption was found to be lower than national average. It was found that pesticide consumption in the selected blocks for the project was very low compared to both state and national average (0.08 kg/ha vs 0.26 kg/ha). N, P and K consumption in Chhattisgarh was below national average (54, 27, 8 kg/ha vs. 166, 81, 35 kg/ha). In the selected block fertilizer consumption was even below the state average (15, 9, 3 kg/ha vs 166, 81, 35). Hence, it would be critical to ensure that growth of the agriculture and allied sector doesn't lead to increased use of agro-chemicals. Mitigation measures in the ESMF are identified to ensure that the growth trajectory of the agriculture and allied sector in the state remains environment friendly, doesn't lead to pollution of natural habitats and groundwater resources and remains competitive in supply safe food to consumers.

Social Baseline:

Demographic Profile

As per details from Census 2011,

- Total population of Chhattisgarh as per 2011 census is 25,540,196 of which male and female are 12,827,915 and 12,712,281 respectively.
- Chhattisgarh's literacy rate is at 71.04 per cent. Female literacy is at 60.59 percent.
- Nearly 60% of the total population of the state is in productive age group of 15 to 59 years. Nearly 20% of the total population of the state comes under the age group of 15 to 24 years.
- Scheduled Tribes make up 30.62% of the population.
- The Scheduled Caste (SC) population of Chhattisgarh is 2,418,722 which has increased from 11.6 percent in 2001 to 12.8% in 2011.

Economic Profile

- Chhattisgarh is India's 18th most populous state and home to 26 million people, 10 million of who are poor.
- Out of total 5622850 households,
 - 75% are electrified, but only 24% have toilet facility.
 - 76% of the total population take bath in open including women.
 - Firewood remains the main source of cooking energy for 81% of the total households.
 - 58% of the total households uses handpump for potable water and only 19% of them own individual handpumps¹⁵⁹.
- About 80% of the State population is dependent on the agriculture sector which contributes only 17% to State GSDP.¹⁶⁰
- Agriculture is primarily small-holder, rainfed and single cropped.
- Spatially, poverty and malnutrition are concentrated in northern and southern tribal-majority regions of the State.
- Scheduled Tribes (ST) are poor, despite being traditionally rich in cultural, social, and natural capital.
- Left-Wing extremism, State service delivery and access to economic opportunities are inter-linked factors for inclusive growth of Chhattisgarh.

Gender Analysis

Detailed discussions were held with women members/groups in the selected sub-project areas. Important observations from the FGDs and other consultations held with women groups in the project locations are presented below.

1. Low women participation in development programs. Due to less/no participation in the development programs, gender concerns are not adequately addressed and hence women are often deprived of benefits from the development activities.
2. While women play significant role in agriculture and other economic activities besides performing household work, their contributions are often not credited.
3. In most cases land ownership lies with men and in only some exceptional cases, it is held by women.
4. Women cultivators have problems in accessing markets particularly because of social and economic constraints in reaching nearby markets.
5. Women were not aware about the importance of nutritional food in the health and wellbeing.

Female Workforce Participation:

Female labor force participation levels in the state are higher than in most states (55 percent) and higher than the average for India (31 percent), as recorded in 2011-12. They are even higher for women living in the ST dominated districts of south Chhattisgarh. Women labourers were mainly involved in intercultural operation, harvesting and transplanting. Among all the agricultural practices transplanting involves highest

¹⁵⁹http://descg.gov.in/pdf/publications/latest/Socio_Economic_Indicator_2015.pdf

¹⁶⁰ Economic Survey, Government of Chhattisgarh, 2019-20 <http://descg.gov.in/pdf/publications/latest/ES2019-20/EconomicSurvey2019-20.pdf>

number of man days per year. Female labourers were involved for 53.32 per cent while male labours contribution is 46.68 per cent in agriculture on an overall basis

Gender Based Violence: Chhattisgarh has seen an increase in domestic violence by 6.8 percentage points between National Family Health Survey-3 (NFHS-3) in 2005-06 to NFHS-4 in 2015-16. In Chhattisgarh, between 2005-06 (NFHS 3) and 2015-16 (NFHS 4), the percentage of ever-married women who have ever experienced spousal violence went up from 29.9 percent to 36.7 percent. The state capital of Raipur ranks fourth across the country in crimes against women.¹⁶¹

The incidence of violence including sexual and physical violence and domestic violence is highest among Dalits (SCs) and tribal. Thirty-nine percent tribal women have ever experienced physical violence since the age of 15 years. On incidence of domestic violence specifically against the national average of 39.7 percent, 47 percent tribal women experience domestic violence. Following actions have been proposed:

- Mapping of response actors
- Develop an IEC strategy and prepare IEC material in the local language on gender equality, zero tolerance for SEA or SH in the project area;
- Informing project workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted;
- Introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination);
- Sensitization and awareness generation of community members and at-risk groups to be carried out regularly on GBV risks, prevention, reporting and response, and
- Continuous stakeholder consultation will be carried out in the project villages to inform the community about GBV risks and redressal mechanisms.
- Strengthen institutional linkages with other departments and response actors for GBV risk mitigation and response.
- Monitoring to be integrated into project safeguard monitoring.

Community Consultations

Consultations were held with the disadvantaged and vulnerable groups, state departments of Forests, Agriculture, Animal Husbandry, Rural Development and the Science and Technology to understand the scope of their participation and sectoral interventions under the project, and the potential social and environmental risks and issues involved. A total of 80 farmers, 16 each of livestock owners, poultry, and fishery and 8 piggery practitioner and 20 officials from various government departments were consulted.

¹⁶¹Drolial, Rashmi. (2012). 'In Chhattisgarh, state capital tops in crimes against women', Times of India, October 24, 2012. Available online at: <https://timesofindia.indiatimes.com/city/bhopal/In-Chhattisgarh-state-capital-tops-incrimes-against-women/articleshow/16939113.cms>. Accessed on 19 January, 2020.

During the initial process of consultations some of the issues pointed out by the primary stakeholders varied. Small and marginal farmers pointed out issue of low productivity due to lack of irrigation, lack of availability of high-quality seeds, lack of market linkages etc. Farmers who had animals pointed out to the issue of lack of feed, fodder, medical aid etc. Other issues included lack of capacity, poor market linkages, lack of access to capital etc.

During the preparation of ESMF, consultations / in-depth interviews were carried out with the above-mentioned stakeholders. Following were agreed:

- Community to be consulted various stages of the project preparation through community consultations.
- Specific consultations will be held near the sites proposed to seek opinions/suggestions of the communities involved. The outcome of consultations will be incorporated as appropriate in the designs and mitigation plans.
- As part of such consultations, the draft mitigation plans will also be presented and explained to the people on the content and process of the implementation of the plans.

Major Concerns: Some of the significant problem the researchers observed after analysing the responses of farmers was as follows:

- Poor Skill of Professional of the Producer companies.
- Lack of vision and direction from board of directors.
- Operational problems like low equity based to low share value.
- Inability to attract capital or credit from outside.
- Poor marketing and value addition experiences.
- Poor business plan.
- High Marketing Cost.
- Lack of cold storage and processing facilities.
- Inactive members.

Suggestions: Based on the problems encountered and after analysing the data the researchers suggest the following concrete ways to overcome the problems:

- Govt. support in the form of grants during the early stage the PCs should be made available.
- Exemption from corporate tax at least for initial few years and the inclusion of financing agency on the board of PCs can also help.
- In India, banks give collateral free loans to small & medium enterprises which can also cover PCs.
- Similarly, PCs can be treated as non-banking financial company to provide loans to farmers members.
- It is also possible to mobilise more equity from within the membership
- It is possible to identify new activities in local areas which are valuable for small farmers e.g. custom hiring of farm machinery and equipment which they cannot afford to buy can rent in.
- FPOs should be considered eligible for investment and working capital grants for processing and marketing infrastructure creation.
- The PC practicing organic farming can be designated as certifying agencies for third parties and individual growers by the union government agencies like APEDA.
- Cold storage facilities should be provided to each FPOs dealing with perishable commodities.
- Proper guideline is needed towards packaging, grading, branding, processing and marketing, especially for value added products.
- Priority should be given in different central and state government agriculture and allied sector programmes to FPOs.
- A state level apex body should be formulated for promotion of FPOs at state level.
- In Mandi yards/regulated markets, separate shops should be provided to FPOs at concessional rate.
- Mushroom and mushroom products should be included in mid-day meal programme.
- More emphasis should be given toward capacity building to FPOs on regular basis.
- Products of FPOs should be linked with PDS system.
- Sponsoring agencies should come forward and issue FPOs development bonds to infuse public funds for the development of FPOs.
- Mobile app intended to provide a platform for buyers and sellers could be developed for better market access.

Stakeholder Engagement Strategy

Ensuring the participation of vulnerable individuals and groups in project consultations will require the implementation of tailored techniques. The vulnerable groups identified by the project include the tribal community, PVTGs, scheduled castes, people living with disabilities, women, small and marginal farmers, and disadvantaged youth. Attention will be given to the vulnerable groups to ensure that they are not denied project benefits. This will be done by focus group discussions, monitoring participation rates, undertaking beneficiary assessments, using online platforms to allow access to otherwise disadvantaged groups, and ensuring that at least 50% of participant trainees are females. A summary description of the engagement methods and techniques that will be applied by project developer is provided below. The summary presents a variety of approaches to facilitate the processes of information provision, information feedback as well as participation and consultation.

Framework for Stakeholder Engagement

Unlike traditional types of engagement – Communication and Consultation, Stakeholder Engagement is an interactive two-way process that encourages participation, exchange of ideas and flow of conversation. It reflects the willingness to share information and make citizens a partner in decision making. Active engagement gives the right to hold others accountable, and accountability is the process of engaging in participation. It seeks greater accountability from the service providers through increased dialogue, consultation and monitoring and assessing performance externally and mutually. For details please refer to Stakeholder Engagement Plan.

Strategy and differentiated measures for Vulnerable Groups

The project will be implementing differentiated measures to include the feedback of vulnerable and disadvantaged groups during the stakeholder engagement process under project implementation. These disadvantaged and vulnerable people are: landless and marginal farmers, scheduled castes households, scheduled tribes, PVTGs, women headed households, people with disability, as well as households designated below the poverty line. Project will employ community coordinators at the investment level. One Community coordinator (CC) will cover 6 villages. The CC will be responsible for mobilization of marginalized community including tribal families. The site-specific interventions will be discussed with the community in a village level meeting ensuring participation of all sections of the society. It will be the responsibility of Agriculture Extension Officer at block level to ensure that community feedback is incorporated in the design of the project to the extent possible.

These main measures are presented below.

- identification of these disadvantaged and vulnerable households, as part of the participatory assessment exercise that will be undertaken in the planning process;
- Dedicated consultations with vulnerable households during planning, as well as during periodic review with the CRCs;
- inclusion amongst beneficiaries of individual benefits as well as common assets and demonstrations;
- Participatory planning and Implementation of animal husbandry focused interventions, especially targeting the tribal as per their cultural norms;

- Differential, and lower, cost sharing requirements for vulnerable households in accessing individual benefits related to agriculture, horticulture, animal husbandry;
- Screening and mitigation planning to ensure vulnerable and disadvantaged groups are not adversely and disproportionately by project interventions.

Roles, Responsibilities and Resources for Stakeholder Engagement

Though the Project Management Unit (PMU) under the Department of Agriculture, Government of Chhattisgarh at state level will be overall responsible for implementation of SEP, the community coordinator (one for every six villages) at the village level are primarily responsible for implementation of SEP. The community coordinator under the supervision of Agriculture Extension Officer of Block level PIU will engage with community through community consultations. The Block level Agriculture Extension Officer will be responsible for in-depth interview / consultation with concerned line department at the block level and similarly District level, Social Specialist of DPMU will be responsible for engaging with the district level officials. The Social Development Specialist in PMU will be responsible for guiding district and block level specialists for engaging stakeholders. For details kindly refer to ESIA and SEP.

Potential Environmental Impacts

Table 3 Overview of potential environmental impacts

Component 1: Community Empowerment and Institutional Strengthening	
Subcomponent 1.1 Participatory Village Planning and Community Institution Building	
<i>Participatory Village Planning and Community Institutional Strengthening</i> <ul style="list-style-type: none"> • Social mobilization, IEC and village entry activities • Partnership with Indira Gandhi Krishi Vishwavidyalaya to support participatory planning, VDPs and regional diagnostics • Hiring of TSA for preparation of Village Development Plans, institution strengthening, capacity building support to Gauthans , Livelihood Groupss and CHIRAAG Resource Committees 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts are foreseen. <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Enhanced village planning and institutional strengthening may lead to increased awareness of environmental management activities associated with the project
Sub-component 1.2 Household Food Availability And Nutrition Practices	

<p><i>Social and Behavior Change Communication (SBCC)</i></p> <ul style="list-style-type: none"> Context (at village level) assessment for design of nutrition interventions adaptive research, development of SBCC content, design of nutrition module along the lines of SBCC for Integrated Farming School Field Schools, materials development and rollout 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> No negative impacts are foreseen. <p>Positive Environmental Impacts</p>
<p>Component 2: Diversified, Resilient and Nutrition Supportive Food and Agriculture Systems</p>	
<p>Sub-component 2.1 Community-Based Natural Resource Management (CBNRM)</p>	
<p><i>Water Management</i></p> <ul style="list-style-type: none"> Rejuvenation of natural water sources, management of existing water bodies Creation of water retention structures (WRS) including construction of small ponds, diversion and conveyance structures, shallow well and small check dams. Sites of interventions will be identified in collaboration and Department of Science and Technology through preparation of geographic information system (GIS)-based landscape maps at block level (~5,000 ha/33 km²), using satellite imagery. The DSWC, with support from TSAs, will adopt a community-based approach in planning, designing and implementing activities 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> Construction of WRS may create unmanaged waste generation; noise, air, soil and water pollution; damage to flora and fauna; occupational health and safety issues of the construction workers during construction Risks of mismanagement of surface and ground water flows, soil salinization if site selection and drainage not done properly <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> Water harvesting and conservation structures and their rejuvenation will increase resource efficiency of both surface and groundwater Increased access to irrigation Increased access to potable water Evidence based site selection for WRS through collaboration with Department of Science and Technology and use of GIS landscape maps will increase resource efficiency and eliminate negative environmental risks

<p><i>Water for crop intensification and integrated farming</i></p> <ul style="list-style-type: none"> • Investments in water harvesting, lifting and farm level irrigation infrastructures like solar pumps, flat pipes, etc. • Climate smart agriculture technologies; efficient irrigation technologies i.e. on-line drip irrigation, rain gun sprinklers • Facilitate cultivation of nutritive horticulture crops in the winter season or beyond in baadi • Introduce short duration pulses/oilseeds in the rabi or winter season • Promotion of community orchards, agroforestry, small scale fishery and livestock rearing activities 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Increased usage of agrochemicals like fertilizers and pesticides due to shift into horticulture • Impact on produce quality and human health from unregulated usage of agrochemicals • Degradation of soil health from overuse of agrochemicals • Environmental, health and safety (EHS) risks from improper handling, storing and disposing agrochemicals <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Increased resource efficiency i.e. reduction in loss of water and higher water productivity from use of efficient irrigation technologies
<p><i>Enhanced soil health</i></p> <ul style="list-style-type: none"> • Upgrading DSWC's capacity for soil analysis and introduce and/or strengthen soil health cards for beneficiary farmers • Soil nutrition management technology demonstrations and farmer training • Soil health measures i.e. improved composting , bio-inoculants, bio-fertilizers 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Restoration of soil fertility • Improved soil health and structure
<p><i>Agro-biodiversity conservation and use</i></p> <ul style="list-style-type: none"> - Promote community action for biodiversity conservation - Investment in community awareness, documentation, conservation and effective utilization through value addition - Facilitate planning investments for community infrastructure such as village seed bank through the VDPs 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved natural resource management and biodiversity conservation practices • Self-sufficiency in seeds

Subcomponent 2.2: Integrated Food and Nutrition Supportive Agriculture	
<p><i>Integrated Food Production System</i></p> <ul style="list-style-type: none"> Develop and scale multiple production systems in agriculture, horticulture, apiculture, livestock, fishery, agro-forestry, sericulture in <i>baadi(homestead)</i>, open fields including FRA lands and in village common lands 	<p>Negative Environmental Impacts and Risks</p> <p><i>Agriculture and horticulture diversification and intensification:</i></p> <ul style="list-style-type: none"> Increased usage of agrochemicals like fertilizers and pesticides due to shift into horticulture Impact on produce quality and human health from unregulated usage of agrochemicals Degradation of soil health from overuse of agrochemicals Environmental, health and safety (EHS) risks from improper handling, storing and disposing agrochemicals <p><i>Livestock</i></p> <ul style="list-style-type: none"> Unhygienic conditions and improper waste and disposals may affect human health, cause air and water pollution Risks of disease transmission Health risks from inadequate sanitation and medicine and vaccine and medicine handling Decomposition and wastage in fodder from improper storage and handling Generation of biomedical waste Over grazing Increased fodder production <p><i>Fisheries and aquaculture</i></p>

	<ul style="list-style-type: none"> • Degradation in soil and water quality from nutrient loading due to excessive use of feed; uncontrolled use of antibiotics and hormones; waste and excreta • Disease outbreak • Spoilage of produce due to unhygienic practice • Escape of invasive/alien species and gene pool contamination <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved soil health from crop rotation, use of organic farming methods • Use of manure from livestock rearing in agriculture
<p><i>Agroforestry and Sericulture</i></p> <ul style="list-style-type: none"> • Promote the cultivation of locally important and preferably leguminous trees, grasses 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • If selection of species not done correctly, agroforestry may cause allelopathy, competition of resources, introduction of invasive species and alternate hosts of pests <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved soil fertility, stabilization of soil and microclimate • Improved soil health and structure • Prevention of run off
<p><i>Technology Demonstrations and Technical Trainings</i></p> <ul style="list-style-type: none"> • Train producers in INRM, nutrition, horticulture, livestock, fisheries, integrated pest management (IPM), soil health, organic agriculture, and climate smart agriculture (CSA) 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved soil health through use of integrated nutrient and pest management practices by farmers • Improved resource efficiency

<p><i>Support to Livelihood Groups (LGs)</i></p> <ul style="list-style-type: none"> Establish a revolving fund from which producers can obtain production loans to create productive assets at the individual level i.e baadi fencing, small livestock sheds, baadi water storage tanks/pits, composting/vermi-composting structures, small machinery/ tools, rainwater harvesting structures and small, lined ponds on FRA lands (for fishery, irrigation, hardy crops and vegetables on pond ridges), horticulture/agro-forestry planting/support materials 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> As covered under each individual section above <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> As covered under each individual section above
<p><i>Common Service Centers (CSCs)</i></p> <ul style="list-style-type: none"> Pilot evolution of Gauthan as a CSC for GP households Investment in essential community infrastructure at Gauthans (large scale composting, bio-fertilizer, agroforestry/horticulture nursery, community seed bank, mechanization center, storage, primary processing units with grants and technical support) 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> Unmanaged waste generation in Gauthans <p>Positive Environmental Impacts</p>
<p><i>Investments in seed production</i></p> <ul style="list-style-type: none"> Strengthening capacity of departments of agriculture and horticulture and financial support for scaling up seed production of pulses, millets, oilseeds and other underutilized crops; strengthening participation of local agriculture universities for seed production programs through supply of breeder seeds and revival of locally adapted seeds, demonstration of climate smart technologies/inputs in project areas 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> Loss of biodiversity and local germplasm if native varieties not promoted <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> Increase in seed self-sufficiency and quality
<p>Component 3: Value Addition And Access To Market</p>	
<p>Subcomponent 3.1 Value Addition For Nutrition</p>	
<ul style="list-style-type: none"> Village level infrastructure support to LGs for post-harvest, primary processing, packaging and storage 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> Increased packaging waste Small scale construction waste and construction related EHS issues Over-exploitation of NTFPs and loss of biodiversity <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> Reduction in spoilage and increased shelf life

<ul style="list-style-type: none"> • Technical support to improve the functioning of rural haats and building the capacity of key market actors for handling local and nutritious foods 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Small scale construction waste and construction related EHS issues <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved potential for waste management in the haats • Improved potential for maintenance of hygienic conditions
<p>Subcomponent 3.2: Value Addition And Accessing Profitable Markets</p>	
<ul style="list-style-type: none"> • Market support activities including certification (organic, fair trade), traceability, packaging, branding; 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Increased packaging waste <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved produce quality and food safety • Improved soil health from organic farming
<ul style="list-style-type: none"> • TSAs for value chain analysis in select commodities 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Increased packaging waste • Increased transport, usage of energy etc may lead to increase GHG emissions <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Reduction in spoilage and increased shelf life

9.8.5.4. *Main Social Impacts and Risks*

The main social issues for CHIRAAG are along the lines of: Social Outreach, Communication and Beneficiary Mobilization among tribal communities, Inclusion of poorest and vulnerable households in project activities, working in remotely located tribal communities with poor connectivity, empowering the women beneficiaries and reducing gender gaps, and implementing the project in LWE areas with attendant security and access issues. Based on secondary data and community consultations, following adverse and positive social impacts have been identified.

Table 4 Overview of potential social impacts

Component 1: Community Empowerment and Institutional Strengthening	
Subcomponent 1.1 Participatory Village Planning and Community Institution Building	
<p><i>Participatory Village Planning and Community Institutional Strengthening</i></p> <ul style="list-style-type: none"> • Social mobilization, IEC and village entry activities • Partnership with Indira Gandhi Krishi Vishwavidyalaya to support participatory planning, VDPs and regional diagnostics • Hiring of TSA for preparation of Village Development Plans, institution strengthening, capacity building support to Gauthans, Livelihood Groups and CHIRAAG Resource Committees 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts are foreseen, however there could be risk of exclusion of marginalized community. <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Participation of marginalized community in decision making process; • Village planning streamlined • Strengthening of community institutions leading to effective management of community and private assets; • Employment opportunities through recruitment of community cadre for spearhead team, that includes training, exposure, and honorarium.
Sub-component 1.2 Household Food Availability And Nutrition Practices	
<p><i>Social and Behavior Change Communication (SBCC)</i></p> <ul style="list-style-type: none"> • Context (at village level) assessment for design of nutrition interventions • adaptive research, development of SBCC content, design of nutrition module along the lines of SBCC for Integrated Farming School Field Schools, materials development and rollout 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No adverse impacts are foreseen. The risk of elite capture remains. <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Beneficiary communities and households empowered to plan and consume diverse, locally available and nutritious foods in their households. • Households adopting positive nutrition and related practices, thereby leading to improved nutrition outcomes.
Component 2: Diversified, Resilient and Nutrition Supportive Food and Agriculture Systems	

Sub-component 2.1 Community-Based Natural Resource Management (CBNRM)

Sub-component 2.1 Community-Based Natural Resource Management (CBNRM)	
<p><i>Water Management</i></p> <ul style="list-style-type: none"> • Rejuvenation of natural water sources, management of existing water bodies • Creation of water retention structures (WRS) including construction of small ponds, diversion and conveyance structures, shallow well and small check dams. Sites of interventions will be identified in collaboration and Department of Science and Technology through preparation of, geographic information system (GIS)-based landscape maps at block level (~5,000 ha/33 km²), using satellite imagery. The DSWC, with support from TSAs, will adopt a community-based approach in planning, designing and implementing activities 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Landless people may get excluded <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Increased access to irrigation • Benefit to marginal & small farmers through improved irrigation facility. • Increased access to potable water
<p><i>Water for crop intensification and integrated farming</i></p> <ul style="list-style-type: none"> • Investments in water harvesting, lifting and farm level irrigation infrastructures like solar pumps, flat pipes, etc. • Climate smart agriculture technologies; efficient irrigation technologies i.e. on-line drip irrigation, rain gun sprinklers • Facilitate cultivation of nutritive horticulture crops in the winter season or beyond in baadi • Introduce short duration pulses/oilseeds in the rabi or winter season • Promotion of community orchards, agroforestry, small scale fishery and livestock rearing activities 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Landless people may get excluded • Small and marginal farmers may get excluded <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Increase in cropping intensity will enhance household income & reduce outward migration. • Benefit to marginal & small farmers through improved irrigation facility.
<p><i>Enhanced soil health</i></p> <ul style="list-style-type: none"> • Upgrading DSWC's capacity for soil analysis and introduce and/or strengthen soil health cards for beneficiary farmers • Soil nutrition management technology demonstrations and farmer training • Soil health measures i.e. improved composting, bio-inoculants, bio-fertilizers 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No adverse social impacts foreseen <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Restoration of soil fertility will lead to better crop yield thus higher household income • Improved knowledge among farmers

<p><i>Agro-biodiversity conservation and use</i></p> <ul style="list-style-type: none"> - Promote community action for biodiversity conservation - Investment in community awareness, documentation, conservation and effective utilization through value addition - Facilitate planning investments for community infrastructure such as village seed bank through the VDPs 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Improved agriculture and water conservation practices • Household nutrition security • Enhance household income • Lesser out migration
<p>Subcomponent 2.2: Integrated Food and Nutrition Supportive Agriculture</p>	
<p><i>Integrated Food Production System</i></p> <ul style="list-style-type: none"> • Develop and scale multiple production systems in agriculture, horticulture, apiculture, livestock, fishery, agro-forestry, sericulture in <i>baadi(homestead)</i>, open fields including FRA lands and in village common lands 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of landless, small and marginal farmers • Risks of disease transmission • Increase in expenditure to maintain the health of livestock • Disease outbreak among fish stock may lead to loss of income <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Enhanced household income • Improved agriculture and allied activities practices • Larger community engagement. • Access to better prices of produce as well as cheaper farm inputs; • Informed decision making
<p><i>Agroforestry and Sericulture</i></p> <ul style="list-style-type: none"> • Promote the cultivation of locally important and preferably leguminous trees, grasses 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of marginalized community <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Un-utilized community land will come under productive utilization • Enhanced household income

	<ul style="list-style-type: none"> Increased availability of fodder
<p><i>Technology Demonstrations and Technical Trainings</i></p> <ul style="list-style-type: none"> Train producers in INRM, nutrition, horticulture, livestock, fisheries, integrated pest management (IPM), soil health, organic agriculture, and climate smart agriculture (CSA) 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> Lack of land title may be an hinderance for women <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> Improved agriculture practices. Latest approaches for technology adoption. Improved women's access to technology. Informed decision making
<p><i>Support to Livelihood Groups (LGs)</i></p> <ul style="list-style-type: none"> Establish a revolving fund from which producers can obtain production loans to create productive assets at the individual level i.e baadi fencing, small livestock sheds, baadi water storage tanks/pits, composting/vermi-composting structures, small machinery/ tools, rainwater harvesting structures and small, lined ponds on FRA lands (for fishery, irrigation, hardy crops and vegetables on pond ridges), horticulture/agro-forestry planting/support materials 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> Exclusion of vulnerable community <p>Positive Social Impacts</p> <ul style="list-style-type: none"> Support grants to LGs as revolving fund Productive assets at the household level Improved water availability for fishery and irrigation, thus enhanced household income. Availability of supply inputs at cost to small and marginal farmers Start- up kits for beneficiary households
<p><i>Common Service Centers (CSCs)</i></p> <ul style="list-style-type: none"> Pilot evolution of Gauthan as a CSC for GP households Investment in essential community infrastructure at Gauthans (large scale composting, bio-fertilizer, agroforestry/horticulture nursery, community seed bank, mechanization center, storage, primary processing units with grants and technical support) 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> Exclusion of marginalized community <p>Positive Social Impacts</p> <ul style="list-style-type: none"> Improved livestock management practices

	<ul style="list-style-type: none"> • Essential community infrastructure at <i>Gauthans</i> to allow for higher level inputs and services to be provided to households in remote project areas. • Capacity building of <i>Gauthan</i> Committees • Improved household resilience to climate shocks • Increased participation of women in <i>Gauthans</i> and CRCs will ensure gender sensitive requirements.
<p>Enhancing District, Sub-district and State Capacity for Quality Inputs and Extension Services in Tribal Areas</p> <ul style="list-style-type: none"> • Upgrading of key infrastructure and capacity of agriculture, horticulture, livestock, fishery and sericulture departments, KVKs and other local agencies. • Capacity enhancement of the State to engage in diagnosis, surveillance and response mechanisms for emerging infectious diseases related to livestock. • Investments in seed production • Work with multiple partners for multiplication and production of certified seeds. • Support common infrastructure for seed production, processing and marketing. 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No adverse impact foreseen. <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Grants to LGs as revolving fund will help finance household level investments • Grants and technical support to <i>Gauthans</i> will help finance infrastructure and activities of the CRC • Establishment of cadre will provide additional employment opportunity • Enhanced capacity of state and district level actors will help in dissemination of improved practices and training inputs.
Component 3: Value Addition And Access To Market	
Subcomponent 3.1 Value Addition For Nutrition	
<ul style="list-style-type: none"> • Village level infrastructure support to LGs for post-harvest, primary processing, packaging and storage 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of marginalized community <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Additional storage facility will help reduce distress selling and retain nutritional value of commodities for longer periods. • Small and marginal farmers will have access to small equipment and community warehouses for storage

<ul style="list-style-type: none"> • Technical support to improve the functioning of rural haats and building the capacity of key market actors for handling local and nutritious foods 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No adverse social impact or risk <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improve functioning of rural <i>haats</i> will help in easy accessibility and improved household income • Greater awareness and nutrition information on foods among farming community
<p>Subcomponent 3.2: Value Addition And Accessing Profitable Markets</p>	
<ul style="list-style-type: none"> • Market support activities including certification (organic, fair trade), traceability, packaging, branding; 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Elite capture by large and lead farmers <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Higher value of products thus increased household income • Increased productive and commercial potential of the LGs • Capacity enhancement of FPOs that will help them expand their business thus increased income • Improved market access & information. • Cost effective transportation. • Employment to landless laborers.
<ul style="list-style-type: none"> • TSAs for value chain analysis in select commodities 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Small and marginal farmers may be excluded from FPOs and decision making process <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Identification of mass and niche market will help in increased income • Enhanced capacity of the FPOs • Greater participation of marginalized groups

Other Social Risks

Risk of Left-Wing Extremism

Left-Wing extremism, State service delivery and access to economic opportunities are inter-linked factors for inclusive growth of Chhattisgarh. Fourteen of the 27 districts in the State are affected by Left-Wing Extremism (LWE) and 8 of them are amongst the 30 most affected districts in the country.¹⁶² About 69% of the State's Scheduled Caste (SC) and Scheduled Tribe (ST) population reside in extremist affected areas.¹⁶³ Although overall LWE-related violence has decreased in the country, Chhattisgarh remains at the heart of the conflict.¹⁶⁴ Factors which had previously contributed to overall exclusion of these regions and furthered LWE are being addressed through the Government of India's multi-pronged strategy¹⁶⁵ which aims to strengthen State service delivery, improve community participation and enable access to entitlements and State-led developmental initiatives. Chhattisgarh is like other resource rich economies: as a positive correlation between resource dependence and conflict occurs, conflict drives down other economic activity and increases economic dependence on the resource sectors. Addressing social unrest by diversifying economic opportunities is thus central to the development of the State.

Social inclusion, community participation and transparency are key strategies, especially in left wing extremism (LWE) areas. Lessons learned from a range of rural livelihood initiatives in Chhattisgarh demonstrate that to avoid exacerbating the LWE situation, it is important to ensure that projects: (a) include the poor, women and tribal community members in all aspects of implementation; (b) are relatively small in scale/have low visibility; (c) utilize local community members in project implementation; (d) are highly transparent with respect to targeting and finances; and (e) train and orient project staff on how to effectively operate in areas affected by LWE groups.

Risks to CHIRAG. Experience of World Bank and IFAD supported agriculture and rural development projects in LWE areas, including Chhattisgarh, over the last decade show that projects that support social, financial and economic inclusion and empowerment of the tribal and the vulnerable households using community based approaches do not face any significant or sustained opposition or disruptions (and may even enjoy tacit support in the LWE areas). Projects that allow tribal communities to plan and decide their investment priorities and actively participate in its implementation, uphold community rights to resources, and can demonstrate good practice on decentralization, transparency and sensitivity to local sociocultural context are likely to function without any significant hindrance in LWE areas, and actually proven to be an effective model that works in LWE areas. Given that CHIRAAG is a CDD project that supports intensification and dimerization of local livelihoods, as well as food and neutrino the security among the tribal beneficiaries, the overall risks on account of LWE seem moderate, relating more to restricted mobility, staff attrition, general apathy to government schemes, and the risks to

162 Ministry of Home Affairs, GoI

163 Planning Commission. (2008). Development Challenges in Extremist Affected Areas, Report of an Expert Group to Planning Commission, GoI: New Delhi. Pp. 21. Available online at: http://planningcommission.nic.in/reports/publications/rep_dce.pdf -Accessed on 19 January, 2020.

164 South Asia Terrorism Portal, Institute of Conflict Management, 2018

165 Transformation of Aspirational Districts Program (TADP) aims at improving service delivery in LWE affected districts by ensuring convergence of Government initiatives of States and Centre, collaboration between different arms of Government and professional technical assistance. Source: <https://niti.gov.in/about-aspirational-districts-programme>

personal security all compound to slow down the pace of implementation progress. Project implementation teams can take up to 2 years to adopt and adapt an operational strategy that works in LWE landscape.

LWE Risk Mitigation. CHIRAAG project design incorporates several elements that respond to the socioeconomic and political economy context of tribal and LWE areas in Chhattisgarh. These are interventions on nutrition supportive agriculture and behaviours, improved access to water resources, support to multiple livelihood streams and better production practices, balancing agriculture with agroforestry and livestock interventions, local value addition and access to better markets, promoting farmers own managed producer organizations. The crosscutting approaches of participatory village planning, community led procurement and implementation, engaging local men and women as resource persons, inclusion of multiple CBOs existing in the village, and direct fund flow to communities as well as inclusion of women and vulnerable hold special meaning and relevance to the LWE context. Apart from these design elements, CHIRAG will be leveraging the longstanding presence, outreach and local credibility of NGOs/CSOs among the communities as well as other stakeholders will be an important risk mitigation strategy. External market actors and intermediaries will be screened for local suitability and acceptance, and youth entrepreneurship will be promoted among local youth. A mandatory LWE sensitization program will be carried for all staff and partners and communities and specific provisions on LWE-sensitive HR will be adopted.

Child Labour

The risk of child labour being employed in the project is low as (i) children below 18 will not be employed as direct workers, contract workers, community workers, or primary suppliers and this will be included in the ESF orientation of communities; (ii) agriculture in tribal areas of Chhattisgarh region is marked by lowest levels of irrigation, crop intensification, productivity and input use and higher levels of diversification (as households need to rely on multiple sources of income).

CHIRAAG will support these diversified livelihoods with nutrition supportive interventions rather than embarking on large scale commercialization. Being a demand based and beneficiary contribution-based project, beneficiary households will be voluntarily electing livelihood activities in agriculture, fishery, livestock and there will not be any externally imposed project activities that households will have to implement. Adult male and female members of Interested households will be the main participants in these interventions, the scale and scope of children's intra-household participation is expected to be low, more as part of the sociocultural and familial tradition of tribal societies. Such intrahousehold participation of families is short term, and highly seasonal and is not known to take children away from schools.

Negative List and Screening

Prior to selection and approval of any sub-project or activity for financing under the project, the PMU shall get the sub-project and activity screened for environment and social risks and non-eligible activity list by its Environment and Social specialists as described in this section. Duly signed and dated screening forms shall be documented and maintained.

Stage 1. Negative list or exclusion

- I. Initial screening of each sub project/activity will be screened against the negative list (list of excluded activities) given below. A sub project or activity that is associated with one or more of the given non-eligible activities in Table, will not be considered for financing under CHIRAAG project.

Table 5 List of non-eligible activities under CHIRAAG

	List of Non-Eligible Activities
a.	Any activity located within a notified Protected Area and Eco Sensitive Zone (ESZ)
b.	Any activity within forest area or critical natural habitat
c.	Any activity that converts or leads to conversion of critical habitats, legally protected and internationally recognized areas of high biodiversity and designated forest areas
d.	Any activity involving pesticides that are banned by the Government of India and are on the list of banned pesticides of the WHO (Class 1A & 1B and Class 2)
e.	Any activity involving construction within close proximity to a site of physical or cultural heritage, archaeological site
f.	Any activity involving use of Asbestos Containing Materials (e.g., AC pipes for irrigation, AC sheets for roof)
g.	Any activity that violates the provisions of applicable National and State laws and of International Treaties and Conventions where India is a signatory
h.	Involuntary land taking irrespective of ownership leading to loss of shelter, livelihood or sources of livelihood; loss of access to private and / or community property

- II. After it is confirmed that a sub-project or activity is not in the non-permissible list of the project, the sub project will be further subject to an environmental and screening checklist (Table 16). Each subproject will be scrutinized as to its type, location, scale, sensitivity, magnitude and risk classification based on its potential environmental and social risk and impacts. Sub-project or activity would be categorized against The World Bank ESF’s risk classification i.e. Low risk, Moderate risk, Substantial risk and High risk given in Table 16.
- Any sub-project or activity rated as **Low risk** will require no further assessment or due diligence except basic monitoring and supervision on an agreed format.
 - Any sub-project or activity rated as **Moderate risk** will prepare, follow, implement, supervise and monitor all mitigation measures, management plans, Good Industrial Practices (GIPs) and Standard Operating Procedures (SOPs) as agreed in this ESMF and the Environment Social Commitment Plan (ESCP).
 - Any sub-project or activity rated as **Substantial risk** will be subjected to a standalone environmental and social impact assessment (ESIA) and will prepare a specific ESMP.

- Any sub-project or activity rated as **High Risk** will not be financed under CHIRAAG project.

Table 6 Risk classification under The World Bank's Environment and Social Framework

Risk	Description
High	The impacts will be considered high if impacts are (i) long term, permanent and/or irreversible (e.g. loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the project; (ii) high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large); (iii) cumulative and/or transboundary in nature; and (iv) a high probability of serious adverse effects to human health and/or the environment (e.g. due to accidents, toxic waste disposal, etc.)
Substantial	The impacts will be considered high if impacts are (i) long term, permanent and/or irreversible (e.g. loss of major natural habitat or conversion of wetland), and impossible to avoid entirely due to the nature of the project; (ii) high in magnitude and/or in spatial extent (the geographical area or size of the population likely to be affected is large to very large); (iii) cumulative and/or transboundary in nature; and (iv) a high probability of serious adverse effects to human health and/or the environment (e.g. due to accidents, toxic waste disposal, etc.)
Moderate	The impacts will be considered moderate if the potential adverse risks and impacts (i) on human populations and/or the environment are not likely to be significant; and risks and impacts can be easily mitigated in a predictable manner: Risks are” predictable and expected to be temporary and/or reversible; (ii) low in magnitude; (iii) site-specific, without likelihood of impacts beyond the actual footprint of the project; and (iv) low probability of serious adverse effects to human health and/or the environment (e.g. do not involve use or disposal of toxic materials, routine safety precautions are expected to be sufficient to prevent accidents, etc.)
Low	The impacts will be considered low if its potential adverse risks and impacts and issues on human populations and/or environment are likely to be minimal or negligible.

Stage 2: Environmental and Social Screening

The main objectives of environmental and social screening of sub-projects are to (a) screen eligibility viz: negative list, (b) determine the anticipated environmental/social impacts, risks and opportunities of the sub-project; and (c) determine if the anticipated impacts and public concern warrant further environmental/ social analysis and if so to recommend the appropriate type and extent of assessments needed. The purpose of screening is to get an overview of the nature, scale, and magnitude of the issues in order to determine the scope of the detailed ESIA that would be subsequently carried out. When a subproject is proposed for initiation, IA through its environment specialist and social specialist of implementing agency (IA) would undertake the environmental and social screening using the Screening Format provided in this section. Key risks and impacts would be identified at this stage, through analysis of on-field data and consultations /

discussions with stakeholders. Risk would be identified against The World Bank ESF's risk classification i.e. Low risk, Moderate risk, and Substantial risk in Table 16. No high-risk activity will be funded under CHIRAAG as mentioned in the negative list. In addition to Table 16, an indicative lists of activities under different risk categories are provided below the screening table 17, that can be used as a guidance to assess risk category. Screening format shall be duly filled and signed and submitted to BPIU for concurrence.

Table 7 Screening format

Environment and Social information format for screening				
Project Title: Implementing agency: Sub Project cost: Project components: Project location (Area/ district): Date of Screening:				
S. No.	Screening Criteria	Y/N	Category Low/Moderate/ Substantial	Explanatory note for categorization should contain the following: <ul style="list-style-type: none"> • Term of the impact, • temporary or permanent • reversible or irreversible • low or high in magnitude • any cumulative and/or transboundary • in nature; and • serious adverse effects to human health and/or the environment
1	Has the subproject been screened for eligibility against the negative list?			
2	Will the subproject create significant/ limited/ no social impacts? <ul style="list-style-type: none"> • Ownership of land identified (private, government or communal) • Whether community / community 			

	<p>leaders were involved in identification of land?</p> <ul style="list-style-type: none"> • Whether there was consensus among the community members towards the land identified? • Involuntary land taking resulting in loss of income or source of income • Involuntary land taking resulting in loss of shelter • Involuntary land taking resulting in loss of access to individual or communal property • Any reduction of access to traditional communities (areas where they earn their primary or secondary livelihood). • Any displacement or adverse impact on tribal settlement(s)¹⁶⁶. • Any specific gender issues. 			
3	<p>Will the subproject create significant / limited / no environmental impacts during the construction stage? (Significant / limited / no impacts)</p> <ul style="list-style-type: none"> • Clearance of vegetation/tree-cover of girth size more than 20 cm • Direct discharge of construction runoff, improper storage and disposal of excavation spoils, wastes and other construction materials adversely affecting water quality and flow regimes. • Flooding of adjacent areas 			

¹⁶⁶In case the answer is “YES” in any of the questions from bullet number 4 to 8, the site for the sub project will be rejected

	<ul style="list-style-type: none"> • Improper storage and handling of substances leading to contamination of soil and water • Elevated noise and dust emission • Disruption to traffic movements • Damage to existing infrastructure, public utilities, amenities etc. • Failure to restore temporary construction sites • Possible conflicts with and/or disruption to local community • Health risks due to unhygienic conditions at workers' camps • Safety hazards during construction 			
4	•			
4	Do subprojects of this nature / type require prior environmental clearance either from the MOEF&CC or from a relevant state government department? (MOEF&CC/ relevant State Government department/No clearance at all)			
5	Does the subproject involve any prior clearance from the MOEF&CC or State Forest department for either the conversion of forest land or for tree-cutting? (Yes/ No). If yes, which?			
6	Will the activity/ subproject create significant / limited / no impacts on any tangible or intangible cultural			

	heritage? ¹⁶⁷			
7	Please attach photographs and location maps along with this completed Environmental Information Format for Screening.			
Overall Assessment				
	What is the is the final risk category of subproject?	Substantial/Moderate/Low		

List of indicative activities and risks

Indicative list of substantial activities

- Construction activities like that of WRS like check dams, ponds, processing plants,

Indicative list of moderate activities

- Value chain activities
- Integrated farming systems in agriculture, horticulture
- Agroforestry activities
- Aquaculture activities
- Community centre activities in Gauthan

Indicative list of low risk activities

- procurement of seeds, agriculture equipments
- training and capacity building activities
- exposure visits

The Review and Appraisal Process

After the screening process and identifying issues, the applicability of the Bank's environment and social standards will be established along with state's and GoI's regulatory requirements. Based on this, boundaries and focus areas for the assessment along with the use of specific instruments and additional institutional support required for the sub-project planning, implementation and supervision are determined. The key steps involved in the process are briefly outlined below.

¹⁶⁷ Tangible cultural heritage includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Intangible cultural heritage includes practices, representations, expressions, knowledge, skills, as well as instruments, objects, artifacts, and cultural spaces associated therewith-that communities and groups recognize as part of their cultural heritage.

- Step 1: Ascertain presence of any environmentally sensitive areas as detailed in the screening criteria section during site identification.
- Step 2: Confirm the applicability of regulations and whether any of the sub-projects are prohibited as per the existing law/regulations in the proposed sites. Wherein the proposed activity is restricted, and change has been made in project design to avoid such prohibitions, Step 1 needs to be performed again.
- Step 3: Conduct reconnaissance site visits for ground truthing to incorporate additional information. The opinion of the stakeholders and public shall be taken through specific public consultations with prior notice.
- Step 4: Revisit the screening check list and ascertain outcomes of the screening checklist. Undertake the detailed screening process for all investments in consultation with the line department/s.
- Step 5: Determine the categorization of the project.

Review Process of Screening Results

- The environmental specialist and Agriculture Extension Officer of BPIU will review the screening checklist and forward the same to DPMU for appraisal. The Agriculture Extension Officer of BPIU will undertake sample of at least 20% of the screening reports for cross checking.
- The Environmental and Social Coordinators at DPMU will review the screening result to identify gaps / inconsistency if any. The E&S Coordinators will take sample of at least 15% of the screening reports for cross checking. Depending upon the review results of E&S Specialist of PMU, the screening report may be returned to BPIU for revision. In case the review by E&S Specialist is found as per the requirement, the specialists will forward the same to SPMU for concurrence.

Level of Scope and Planning

Based on environmental and screening results, the sub project needs to be categorized as low risk, moderate risk, substantial risk and high risk. Any sub-project or activity rated as **Low risk** will require no further assessment or due diligence except basic monitoring and supervision on an agreed format. Any sub-project or activity rated as **Moderate risk** will prepare, follow, implement, supervise and monitor all mitigation measures, management plans, Good Industrial Practices (GIPs) and Standard Operating Procedures (SOPs) as agreed in this ESMF and the Environment Social Commitment Plan (ESCP). Any sub-project or activity rated as **Substantial risk** will be subjected to a standalone environmental and social impact assessment (ESIA) and will prepare a specific ESMP. Any sub-project or activity rated as **High Risk** will not be financed under CHIRAAG project.

Preparation of Environmental Social Management Plans (ESMPs)

The Environmental and Social Management Plan (ESMP) consists of the set of mitigation, monitoring and institutional measures to be taken during the design, construction and operation stages of the project to eliminate adverse environmental and social impacts, to offset them, or to reduce them to acceptable levels. The plan also includes the actions needed for the implementation of these measures.

Based on the screening results (section 6.5) and mitigation measures identified (section 6.7), where relevant, site specific ESMPs will be prepared for activities and sub-projects to detailing (i) measures to be taken during implementation and operation phase of the project to eliminate or offset adverse social and impacts, or to reduce them to acceptable levels and (ii) actions needed to implement the measures. Specific plans such as a Pest Management Plan (PMP), a Nutrient Management Plan (NMP) to meet the requirements for ESS 3, a Biodiversity Management Plan (BMP) to meet the requirements of ESS 6, and a generic Construction Management Plan to address any construction related activity will be prepared within 120 days from the date of project effectiveness as agreed in the Environment and Social Commitment Plan (ESCP). A draft Pest Management Plan (PMP) and a draft Nutrient Management Plan (NMP) have been developed (Annex 20 and 21 respectively), which would be finalized within 120 days from the project effectiveness.

If it is not possible to avoid impacts on cultural heritage under a sub-project or activity, a Cultural Heritage Management Plan will be prepared as part of the site specific ESMP based on the mitigation hierarchy and detailing implementation timeline, estimate of resource for each mitigation measure to meet the requirements of ESS8. Specifically;

- The management plan shall consider various activities proposed under the project and provide management measures to be followed for different phases of implementation, along with the responsibility allocation for implementation and Monitoring plan.
- Apart from addressing the issues, management measures shall also explore enhancement opportunities and their inclusion in project components shall be ensured.
- The management measures identified shall be made part of the project components and shall be included in the bid documents appropriately.
- The cost for implementation of the management measures, the institutional arrangements for monitoring, etc. shall be included in the project cost.
- For construction / EHS impacts; guidance includes The World Bank Group General EHS Guidelines contain information on cross-cutting environmental and social, health, and safety issues potentially applicable to construction and can be downloaded via the following link.

https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

- For agriculture, livestock, aquaculture value chains and processing activities, The World Bank Group Industry Sector Guidelines on Agribusiness/Food production contain relevant information and can be used (downloaded via the following link)

https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

Tabulated summary of key Environmental impacts and mitigation/management measures for probable impacts as per project components is provided in the following Section 6.7 and Tables 18 and 19.

Cost for Mitigation Measures including Monitoring Plan

The ESMP Cost shall include cost for all mitigation measures and monitoring required during various stages of the project. Details on including these costs for mitigation measures in the cost tables of the contract shall be presented to Environmental and Social Specialist of SPMU to ensure the preparation and implementation of Contractors-ESMP and the inclusion of ESMP cost in contract documents.

Project Appraisal

During the finalization of sub project, the environmental and social aspects will be reviewed against the standards set in the ESMF. The review will include:

- a. Review of sub project designs and cost estimates to assess the adequacy of environmental and social assessment and management measures provided,
- b. Scope for enhancement opportunities.
- c. Compliance with regulatory requirements and clearances if required
- d. Integration of environmental and social measures in to the design where ever relevant
- e. Arrangements for implementation of ESMP, including institutional capacity and contractual provisions
- f. Inclusion of ESMP provisions in the bid document
- g. Need for any legal covenant to address any specific environmental and social risks including regulatory risks
- h. Disclosure of project information and Public consensus on the sub project and locations/ sites involved.
- i. Readiness of the sites required for the sub-project.

Project Implementation

Project Implementation starts with bidding procedures. Right from the pre-bid stage, it is important to incorporate environmental and social conditions, so that the contractors are aware of and are prepared with adequate finances and institutional set up to ensure implementation of environmental and social enhancement measures and safeguards.

With the revision to the World Bank's Standard Bidding Documents in January 2017, Environmental and Social Health and Safety (ESHS) requirements are well defined in the bid documents. In addition, an ESHS Performance Security has been incorporated into the requirements from potential bidders for the implementation of works under project financing. This revision incorporates changes to enhance environmental, social, health and safety performance during all stages of the subproject.

ESHS Performance Security

Depending on the associated risk of the subprojects, an ESHS Performance Security, of 1-3% of the total contract value shall be maintained as per the Guidance provided supplementing the World Bank's Standard Bidding Document. The total performance security for contracts will typically be 10 percent of the total contract value of which 3 percent should be allocated to the ESHS performance security, while; where a contract has a performance security of 20 percent the ESHS performance security is to be maintained at a maximum of 5 percent of the total contract value.

The Environmental and Social Specialists and procurement team of the SPMU will be required to liaise to ensure that the guidance is incorporated accordingly. Detailed Management Information System linking project details, scheduling and ESMF implementation will support the SPMU in the effective preparation of safeguard instruments, supervision, and monitoring.

All sections of the bid documents are to be reviewed in detailed and cross reference will need to be made to the safeguards policies and instruments relevant to the specific subprojects which have been prepared as per the requirements of this ESMF. Where required the SPMU Environmental and Social specialists may be required to update recommendations in the ESMP to match the language in the Bid Document where major discrepancies have been noted to facilitate consistency in all documents.

The budget for complying with the ESMP needs to be worked out for each sub-project by working out the cost of implementing each ESMP mitigation measure. The contractor is required to provide a costing at minimum within this amount in his BOQ, listing itemized values for ESMP implementation. The language should indicate that the contractor will be required to provide an itemized costing with the BOQ within this allocation.

In addition to the mitigation measures provided in the next section (Table 18 and 19), a range of specific plans are being developed. To meet the requirements of ESS3, a draft Pest Management Plan (PMP) and draft Nutrient Management Plan (NMP) have been developed (Annex 20 and 21 respectively), which would be finalized within 120 days from the project effectiveness. Similarly, to meet the requirements of ESS6, a Biodiversity Management Plan is to be prepared within 120 days from the date of project effectiveness.

Environment and Social Mitigation Measures

The section below provides summary of environmental and social impacts and risks. The component wise details are provided in table 18.

9.8.5.5. *Potential Environment Impacts and Mitigation measures*

Impacts

Key activities under the project include creation of water retention structures (WRS) including construction of small ponds, diversion and conveyance structures, shallow well and small check dams, investments in water harvesting, lifting and farm level irrigation infrastructures like solar pumps, flat pipes, etc., facilitate cultivation of nutritive horticulture crops in the winter season or beyond in baadi (homestead), introduce short duration pulses/oilseeds in the rabi or winter season, develop and scale multiple production systems in agriculture, horticulture, apiculture, livestock, fishery, agro-forestry, sericulture in baadi(homestead), open fields including FRA lands and in village common lands, agroforestry, scaling up seed production of pulses, millets, oilseeds and other underutilized crops; village level infrastructure support to LGs for post-harvest, primary processing, packaging and storage

Some key potential adverse environment impacts identified are as follows:

- Construction of WRS may create unmanaged waste generation; noise, air, soil and water pollution; damage to flora and fauna; occupational health and safety issues of the construction workers during construction; risks of mismanagement of surface and ground water flows if site selection not done properly
- Increased usage of agrochemicals like fertilizers and pesticides due to shift into horticulture
- Impact on produce quality and human health from unregulated usage of agrochemicals
- Degradation of soil health from overuse of agrochemicals
- Environmental, health and safety (EHS) risks from improper handling, storing and disposing agrochemicals
- Unhygienic conditions and improper waste and disposals may in livestock rearing units affect human health, cause air and water pollution and have risks of disease transmission
- Degradation in soil and water quality from nutrient loading due to excessive use of feed; uncontrolled use of antibiotics and hormones; waste and excreta in aquaculture ponds
- Loss of biodiversity and local germplasm if native varieties not promoted
- Increased packaging waste
- Small scale construction waste and construction related EHS issues

In addition to the potential adverse impacts and risks identified, some of the positive impacts identified under the project are improved soil health from crop rotation, use of organic farming methods and use of manure from livestock rearing in agriculture, use of integrated nutrient and pest management practices by farmers. Increase in resource efficiency of both surface and groundwater from water harvesting and conservation structures and their rejuvenation. Increased resource efficiency i.e. reduction in loss of water and higher water productivity from use of efficient

irrigation technologies. Improved soil fertility, stabilization of soil and microclimate, improved soil health and structure, prevention of run off from agroforestry activities.

Mitigation Measures

The key mitigation measures for identified adverse impacts are as follows:

- Implementation of Integrated Pest Management Plan (PMP) and Nutrient Management Plan (NMP) for selected commodities
- Regular monitoring and supervision of implementation of PMP and NMP Plans
- Budget allocation for regular Maximum Residual Limit (MRL) testing and monitoring
- Trainings on orchard management
- Preparation and implementation of Good Aquaculture Practices, and adequate training, monitoring and supervision conducted for selected beneficiaries
- Preparation and dissemination of good housekeeping guidelines, maintenance checklists in local language to facilitate maintenance of sanitary conditions
- Follow national guidelines (2018) on biomedical waste disposal (make budgetary provisions for colored bins and disposal of sharps and animal parts etc.)
- Science based selection of species for agroforestry compatible to local climate, soil, flora, identification
- For seed production scale up, local and native varieties will be selected as part of seed production and development investments – through
 - Identification and documentation of local and native seed varieties of rice in millets, leafy vegetables, tuber in collaboration with IGKV (agriculture university)
 - Revival and maintenance strategies for local varieties
- Inclusion of workshops and trainings on good waste management practices as part of the infrastructure and financial support to LGs post-harvest, primary processing, packaging and storage
- Promote use of cotton and jute packaging materials or any other biodegradable sheets over single-use plastic in value addition activities
- Preparation and implementation of a generic Construction Management Plan for any proposed small construction works to address EHS issues.
- Preparation, implementation and monitoring of a Biodiversity Management Plan (BMP)

Potential Social Impacts and Risks

The potential social impacts are largely positive but there are social risks and few adverse impacts as listed below:

Adverse Social Impacts and Risks: The adverse social risks and impacts include:

- Landless and Small and marginal farmers may get excluded from decision making process and beneficiary list

- Lack of land title may be an hinderance for women getting benefits
- Increase household expenditure due to risks of disease transmission; maintaining the health of livestock; poultry; etc.

Social Mitigation Measures

Given the issues above, the focus of social mitigation measures is largely on social mobilization. The issues raised during consultations have been incorporated in the design of the project itself. The project plans to:

- Train Community Coordinators in community mobilization by IGKV
- The sub projects will be identified and finalized in Gram Sabha. Gram Sabha will be called with at least seven days of prior notice ensuring participation of marginalized groups in Village Development Plans Creating awareness among the households through IEC material
- Both land owner and spouse to be member of Gauthan Committees and CRCs to ensure that women are not left out due to lack of land title
- Grievance Redress Mechanism that is accessible and responsive to the needs of the community.
- Regular monitoring

Component wise impacts and mitigation measures are presented in table below:

Table 8 Mitigation Measures for Potential Environmental Impacts and Risks

Activies	Impacts	Mitigation Measures	Responsibility
Component 2: Diversified, Resilient, Nutrition Supportive Food and Agriculture System			
Sub-component 2.1 Community-Based Natural Resource Management (CBNRM)			
Water Management <ul style="list-style-type: none"> • Renovation and management of existing water storage structures • Creation of water retention structures (WRS) including construction of small ponds, diversion and conveyance structures, shallow well and small check dams. Sites of interventions will be identified in collaboration and Department of Science and 	Negative Environmental Impacts and Risks <ul style="list-style-type: none"> • Construction of WRS may create unmanaged waste generation; noise, air, soil and water pollution; damage to flora and fauna; occupational health and safety issues of the construction workers during construction; • Risks of mismanagement of surface and ground water flows, 	<ul style="list-style-type: none"> • Science based and participatory selection of site for intervention and construction of water retention structures. • The generic Construction Management Plan to be prepared within 120 days from project effectiveness (ESCP, Annex 17) should be 	SPMU Environment Specialist SPMU Agriculture Coordinator

<p>Technology through preparation of, geographic information system (GIS)-based landscape maps at block level (~5,000 ha/33 km²), using satellite imagery. The DSWC, with support from TSAs, will adopt a community-based approach in planning, designing and implementing activities</p>	<p>soil salinization if site selection and drainage not done properly</p> <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Water harvesting and conservation structures and their rejuvenation will increase resource efficiency of both surface and groundwater • Increase access to irrigation • Increased access to potable water • Evidence based site selection for WRS through collaboration with Department of Science and Technology and use of GIS landscape maps will increase resource efficiency and eliminate negative environmental risks 	<p>implemented for any proposed construction work.</p> <ul style="list-style-type: none"> • In case of an encounter with a previously unknown cultural heritage during construction work, Chance Find Procedure (Annex 18) to be implemented. 	
<p><i>Water for crop intensification and integrated farming</i></p> <ul style="list-style-type: none"> • Investments in water harvesting, lifting and farm level irrigation infrastructures like solar pumps, flat pipes, etc. • Climate smart agriculture technologies; efficient irrigation technologies i.e. on-line drip irrigation, rain gun sprinklers • Facilitate cultivation of nutritive horticulture crops in 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Increased usage of agrochemicals like fertilizers and pesticides due to shift into horticulture • Impact on produce quality and human health from unregulated usage of agrochemicals • Degradation of soil health from overuse of agrochemicals • Environmental, health and safety (EHS) risks from improper handling, storing and disposing agrochemicals 	<ul style="list-style-type: none"> • Implementation of Integrated Pest Management Plan (PMP) and Nutrient Management Plan (NMP) Packages for selected commodities (see draft PMP and NMP in Annex 20 and 21 respectively; to be finalized within 120 from project effectiveness) • Regular monitoring and supervision of implementation of PMP and NMP Plans 	<p>SPMU Environment Specialist</p> <p>SPMU Agriculture Coordinator</p>

<p>the winter season or beyond in baadi</p> <ul style="list-style-type: none"> • Introduce short duration pulses/oilseeds in the rabi or winter season • Promotion of community orchards, agroforestry, small scale fishery and livestock rearing activities 	<p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Increased resource efficiency i.e. reduction in loss of water and higher water productivity from use of efficient irrigation technologies 	<ul style="list-style-type: none"> • Budget allocation for regular Maximum Residual Limit (MRL) testing and monitoring • Training on orchard management 	
<p><i>Enhanced soil health</i></p> <ul style="list-style-type: none"> • Upgrading DSWC's capacity for soil analysis and introduce and/or strengthen soil health cards for beneficiary farmers • Soil nutrition management technology demonstrations and farmer training • Soil health measures i.e. improved composting , bio-inoculants, bio-fertilizers 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Restoration of soil fertility • Improved soil health and structure 	<ul style="list-style-type: none"> • Monitoring and documentation of implementation of soil management activities and trainings to beneficiaries 	<p>SPMU Environment Specialist</p> <p>SPMU Agriculture Coordinator</p>
<p><i>Agro-biodiversity conservation and use</i></p> <ul style="list-style-type: none"> • Promote community action for biodiversity conservation • Investment in community awareness, documentation, conservation and effective utilization through value addition • Facilitate planning investments for community infrastructure such as village seed bank through the VDPs 	<p>Negative Environmental Impacts</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved natural resource management and biodiversity conservation practices • Self-sufficiency in seeds 		
<p>Subcomponent 2.2: Integrated Food and Nutrition Supportive Agriculture</p>		<p>Mitigation measures</p>	<p>Responsibility</p>

<p><i>Integrated Food Production System</i></p> <p>9.8.6. Develop and scale multiple production systems in agriculture, horticulture, apiculture, livestock, fishery, agro-forestry, sericulture in <i>baadi</i>(homestead), open fields including FRA lands and in village common lands</p>	<p>Potential Negative Environmental Impacts</p> <p><i>Agriculture and horticulture diversification and intensification:</i></p> <ul style="list-style-type: none"> • Increased usage of agrochemicals like fertilizers and pesticides due to shift into horticulture • Impact on produce quality and human health from unregulated usage of agrochemicals • Degradation of soil health from overuse of agrochemicals • Environmental, health and safety (EHS) risks from improper handling, storing and disposing agrochemicals <p><i>Livestock</i></p> <ul style="list-style-type: none"> • Erosion of indigenous breeds and varieties • Inferior progeny selection and testing, exposure to disease and genetic erosion • Unhygienic conditions and improper waste and disposals may affect human health, cause air and water pollution • Risks of disease transmission • Health risks from inadequate sanitation and medicine and vaccine and medicine handling 	<p><i>Agriculture and horticulture diversification and intensification:</i></p> <ul style="list-style-type: none"> • Implementation of PMP (see draft PMP in Annex 19; to be finalized within 120 days from project effectiveness) • Implementation of NMP (see draft NMP in Annex 21; to be finalized within 120 from project effectiveness) • Regular monitoring and supervision of implementation of PMP and NMP Plans • Budget allocation for regular MRL testing and monitoring <p><i>Livestock</i></p> <ul style="list-style-type: none"> • Include indigenous in breed improvement program • Use only certified disease-free sperms from Category A sperm stations for breed improvement and AI • Training on maintenance of hygienic conditions in hatcheries and units to be given to famers • Preparation and dissemination of good housekeeping guidelines, maintenance checklists in 	<p>SPMU Environment Specialist</p> <p>SPMU Agriculture Coordinator SPMU Livestock Coordinator</p> <p>SPMU Fisheries Coordinator</p>
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	<ul style="list-style-type: none"> • Decomposition and wastage in fodder from improper storage and handling • Generation of biomedical wastes • Over grazing • Increased fodder production <p><i>Fisheries and aquaculture</i></p> <ul style="list-style-type: none"> • Degradation in soil and water quality from nutrient loading due to excessive use of feed; uncontrolled use of antibiotics and hormones; waste and excreta • Disease outbreak • Spoilage of produce due to unhygienic practice • Escape of invasive species and gene pool contamination <p>Potential Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved soil health from crop rotation, use of organic farming methods • Use of manure from livestock rearing in agriculture 	<p>local language to facilitate maintenance of sanitary conditions</p> <ul style="list-style-type: none"> • Establishment of proper solid & liquid waste management system in the rearing units. • Regular monitoring and supervision as follow ups to training • Training on safe storage, handling and disposal of medicines • Follow national guidelines (2018) on biomedical waste disposal (make budgetary provisions for colored bins and disposal of sharps and animal parts etc.) • Stall feeding of fodder at Gauthans will be done to avoid over-grazing • Increased fodder demands will be met from existing farmlands and fodder conservation measures like silage preparation will be practiced. <p><i>Fisheries and aquaculture</i></p> <ul style="list-style-type: none"> • Implementation of “Good Aquaculture Practice” guidelines to be prepared within 120 from project 	
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		<p>effectiveness (ESCP, Annex 17)</p> <ul style="list-style-type: none"> • Sitting and design of pond should be done according to the guidelines • Regular supervision and monitoring of the aquaculture guidelines 	
<p><i>Agroforestry and Sericulture</i></p> <ul style="list-style-type: none"> • Promote the cultivation of locally important and preferably leguminous trees, grasses 	<p>Potential Negative Environmental Impacts</p> <ul style="list-style-type: none"> • If selection of species not done correctly, agroforestry may cause, competition of resources, introduction of invasive species and alternate hosts of pests <p>Potential Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved soil fertility, stabilization of soil and microclimate • Improved soil health and structure • Prevention of run off 	<ul style="list-style-type: none"> • Science based selection of species compatible to local climate, soil, flora • 	<p>SPMU Environment Specialist</p> <p>SPMU Agriculture Coordinator</p>
<p><i>Technology Demonstrations and Technical Trainings</i></p> <ul style="list-style-type: none"> • Train producers in integrated nutrient and pest management (IPNM), nutrition, horticulture, livestock, fisheries, soil health, 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Environmental Impacts</p>	<ul style="list-style-type: none"> • Monitoring of training provided to producers 	<p>SPMU Environment Specialist</p> <p>SPMU Agriculture Coordinator</p>

<p>organic agriculture, and climate smart agriculture (CSA)</p>	<ul style="list-style-type: none"> • Improved soil health through use of integrated nutrient and pest management practices by farmers • Improved resource efficiency 		
<p><i>Support to Livelihood Groups (LGs)</i></p> <ul style="list-style-type: none"> • Establish a revolving fund from which producers can obtain production loans to create productive assets at the individual level i.e baadi fencing, small livestock sheds, baadi water storage tanks/pits, composting/vermi-composting structures, small machinery/ tools, rainwater harvesting structures and small, lined ponds on FRA lands (for fishery, irrigation, hardy crops and vegetables on pond ridges), horticulture/agro-forestry planting/support materials 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • As covered under each individual section above <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • As covered under each individual section above 	<p>As covered under each individual section above under “Integrated Food Production System”)</p>	<p>As covered under each individual section above under “Integrated Food Production System”)</p>
<p><i>Common Service Centers (CSCs)</i></p> <ul style="list-style-type: none"> • Pilot evolution of Gauthan as a CSC for GP households • Investment in essential community infrastructure at Gauthans (large scale composting, bio-fertilizer, agroforestry/horticulture nursery, community seed bank, mechanization center, storage, primary processing units with grants and technical support) 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Unmanaged waste generation in Gauthans <p>Potential Positive Environmental Impacts</p>	<ul style="list-style-type: none"> • Establishment of proper waste management system in the Gauthans • The generic Construction Management Plan to be prepared within 120 days from project effectiveness (ESCP, Annex 17) should be implemented for any proposed construction work. • In case of an encounter with a previously unknown cultural heritage during 	<p>SPU Environment Specialist</p>

		<p>construction work, Chance Find Procedure to be implemented (Annex 18).</p> <ul style="list-style-type: none"> In case of potential impacts on tangible or intangible cultural heritage management plan (CHMP) will be prepared and implemented. 	
<p><i>Investments in seed production</i></p> <ul style="list-style-type: none"> Strengthening capacity of departments of agriculture and horticulture and financial support for scaling up seed production of pulses, millets, oilseeds and other underutilized crops; Strengthening participation of local agriculture universities for seed production programs through supply of breeder seeds and revival of locally adapted seeds, demonstration of climate smart technologies/inputs in project areas 	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> Loss of biodiversity and local germplasm if native varieties not promoted <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> Increase in seed self-sufficiency and quality 	<ul style="list-style-type: none"> Local and native varieties will be selected as part of seed production and development investments – through <ol style="list-style-type: none"> Identification and documentation of local and native seed varieties of rice in millets, leafy vegetables, tuber in collaboration with IGKV Revival and maintenance strategies for local varieties 	<p>SPMU Agriculture Coordinator</p> <p>SPMU Environment Specialist</p>
Component 3: Value Addition And Access To Market		Mitigation measures	Responsibility
Subcomponent 3.1 Value Addition for Nutrition			
Village level infrastructure support to LGs for post-harvest, primary processing, packaging and storage	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> Increased packaging waste Small scale construction waste and construction related EHS issues 	<ul style="list-style-type: none"> Inclusion of workshops and trainings on good waste management practices as part of the infrastructure and financial support to LGs post-harvest, primary 	<p>SPMU Agribusiness and Value Chain Coordinator</p>

<p>Training and capacity building will focus on management skills and good governance</p>	<ul style="list-style-type: none"> • Over-exploitation of NTFPs and loss of biodiversity <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Reduction in spoilage and increased shelf life 	<p>processing, packaging and storage</p> <ul style="list-style-type: none"> • Promote use of cotton and jute packaging materials or any other biodegradable sheets over single-use plastic • Implementation of Biodiversity Management Plan (BMP) to be prepared within 120 days from project effectiveness (ESCP, Annex 17) 	<p>SPMU Environment Specialist</p>
<p>Technical support to improve the functioning of rural haats and building the capacity of key market actors for handling local and nutritious foods</p>	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Small scale construction waste and construction related EHS issues <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved potential for waste management in the haats • Improved potential for maintenance of hygienic conditions 	<ul style="list-style-type: none"> • In the ToRs for Technical Support for rural haat improvement, provision for waste management designs and system to be included. • The generic Construction Management Plan to be prepared within 120 days from project effectiveness, should be implemented for any proposed construction work. (ESCP, Annex 17) • In case of an encounter with a previously unknown cultural heritage during construction work, Chance Find Procedure to be implemented (Annex 18). 	<p>SPMU Agribusiness and Value Chain Coordinator</p> <p>SPMU Environment Specialist</p>
<p>Subcomponent 3.2: Value Addition And Accessing Profitable Markets</p>		<p>Mitigation measures</p>	<p>Responsibility</p>

<p>Market support activities including certification (organic, fair trade), traceability, packaging, branding;</p>	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Increased packaging waste <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved produce quality and food safety • Improved soil health from organic farming 	<ul style="list-style-type: none"> • Inclusion of workshops and trainings and investment in waste management (especially plastic and packaging) in the market support activities 	<p>SPMU Agribusiness and Value Chain Coordinator</p> <p>SPMU Environment Specialist</p>
<p>TSA for value chain analysis in select commodities</p>	<p>Negative Environmental Impacts and Risks</p> <ul style="list-style-type: none"> • Increased packaging waste • Generation of solid and liquid wastes and effluents • Increased transport, usage of energy etc may lead to increase GHG emissions • Occupational Health and Safety (OHS) issues <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Reduction in spoilage and increased shelf life 	<ul style="list-style-type: none"> • Ensure that all statutory clearances are obtained, as may be necessary • In the ToRs for Value Chain Analyses, provision for GHG emission analysis and mitigation designs to lower the GHG emissions arising from proposed value chain development activities to be included. • Financial support to cover cost of pollution prevention through renewable energy sources/devices, drainage and effluent treatment (where required) • In the ToRs for Value Chain Analyses, provision for waste management, OHS requirements arising from proposed value chain development activities to be included. 	<p>SPMU Agribusiness and Value Chain Coordinator</p> <p>SPMU Environment Specialist</p>

Table 9 Mitigation Measures for Potential Social Impacts and Risks

Activities	Impacts	Mitigation Measures	Responsibility
Component 1: Community Empowerment and Institutional Strengthening			
Subcomponent 1.1 Participatory Village Planning and Community Institution Building			
<p><i>Participatory Village Planning and Community Institutional Strengthening</i></p> <ul style="list-style-type: none"> • Social mobilization, IEC and village entry activities • Partnership with Indira Gandhi Krishi Vishwavidyalaya to support participatory planning, VDPs and regional diagnostics • Hiring of TSA for preparation of Village Development Plans, institution strengthening, capacity building support to Gauthans, Livelihood Groups and CHIRAAG Resource Committees 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts are foreseen, however there could be risk of exclusion of marginalized community. <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Participation of marginalized community in decision making process; • Village planning streamlined • Strengthening of community institutions leading to effective management of community and private assets; • Employment opportunities through recruitment of community cadre for spearhead team. 	<ul style="list-style-type: none"> • Community Coordinators will be trained in community mobilization by IGKV • Identification and finalization of sub projects in Gram Sabha is part of the project design • Gram Sabha to be called with at least seven days of prior notice • Participation of marginalized groups in Village Development Plans preparation is part of project design 	<ul style="list-style-type: none"> • Agriculture Extension Officer of Block PIU • Social Specialist of SPMU
Sub-component 1.2 Household Food Availability and Nutrition Practices			
<p><i>Social and Behavior Change Communication (SBCC)</i></p>	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No adverse impacts are foreseen. The risk of elite capture remains. 	<ul style="list-style-type: none"> • Creating awareness among the households through IEC material 	<ul style="list-style-type: none"> • Community Coordinators

<ul style="list-style-type: none"> Context (at village level) assessment for design of nutrition interventions adaptive research, development of SBCC content, design of nutrition module along the lines of SBCC for Integrated Farming School Field Schools, materials development and rollout 	<p>Positive Social Impacts</p> <ul style="list-style-type: none"> Beneficiary communities and households empowered to plan and consume diverse, locally available and nutritious foods in their households. Households adopting positive nutrition and related practices, thereby leading to improved nutrition outcomes. 	<ul style="list-style-type: none"> Selection of beneficiary households through community meetings. Project focus is largely on marginalized groups 	<ul style="list-style-type: none"> Agriculture Extension Officer at Block level Social Development Specialist of SPMU
<p>Component 2: Diversified, Resilient and Nutrition Supportive Food and Agriculture Systems</p>			
<p>Sub-component 2.1 Community-Based Natural Resource Management (CBNRM)</p>			
<p><i>Water Management</i></p> <ul style="list-style-type: none"> Rejuvenation of natural water sources, management of existing water bodies Creation of water retention structures (WRS) including construction of small ponds, diversion and conveyance structures, shallow well and small check dams. Sites of interventions will be identified in collaboration and Department of Science and Technology through preparation of, geographic information system (GIS)-based landscape maps at block level (~5,000 ha/33 km²), using satellite imagery. The DSWC, with support from TSAs, will adopt a community-based 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> Landless people may get excluded <p>Positive Social Impacts</p> <ul style="list-style-type: none"> Increased access to irrigation Benefit to marginal & small farmers through improved irrigation facility. Increased access to potable water 	<ul style="list-style-type: none"> Grievance Redress Mechanism that is accessible and responsive to the needs of the community. Regular monitoring 	<ul style="list-style-type: none"> Social Development Specialist at SPMU and DPMU Institution Development Specialist at Block Level

<p>approach in planning, designing and implementing activities</p>			
<p><i>Water for crop intensification and integrated farming</i></p> <ul style="list-style-type: none"> • Investments in water harvesting, lifting and farm level irrigation infrastructures like solar pumps, flat pipes, etc. • Climate smart agriculture technologies; efficient irrigation technologies i.e. on-line drip irrigation, rain gun sprinklers • Facilitate cultivation of nutritive horticulture crops in the winter season or beyond in baadi • Introduce short duration pulses/oilseeds in the rabi or winter season • Promotion of community orchards, agroforestry, small scale fishery and livestock rearing activities 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Landless people may get excluded • Small and marginal farmers may get excluded <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Increase in cropping intensity will enhance household income & reduce outward migration. • Benefit to marginal & small farmers through improved irrigation facility. 	<ul style="list-style-type: none"> • Community Coordinators along with IAs to ensure participation of marginalized group • Grievance Redress Mechanism established 	<ul style="list-style-type: none"> • Community Coordinators • Agriculture Extension Officer at Block PIU • Social Specialist of IA
<p><i>Enhanced soil health</i></p> <ul style="list-style-type: none"> • Upgrading DSWC's capacity for soil analysis and introduce and/or strengthen soil health cards for beneficiary farmers • Soil nutrition management technology demonstrations and farmer training <p>Soil health measures i.e. improved composting, bio-inoculants, bio-fertilizers</p>	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No adverse social impacts foreseen <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Restoration of soil fertility will lead to better crop yield thus higher household income • Improved knowledge among farmers 		

<p><i>Agro-biodiversity conservation and use</i></p> <ul style="list-style-type: none"> - Promote community action for biodiversity conservation - Investment in community awareness, documentation, conservation and effective utilization through value addition - Facilitate planning investments for community infrastructure such as village seed bank through the VDPs 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No negative impacts foreseen <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Improved agriculture and water conservation practices • Household nutrition security • Enhance household income • Lesser out migration 		
<p>Subcomponent 2.2: Integrated Food and Nutrition Supportive Agriculture</p>			
<p><i>Integrated Food Production System</i></p> <p>Develop and scale multiple production systems in agriculture, horticulture, apiculture, livestock, fishery, agro-forestry, sericulture in <i>baadi(homestead)</i>, open fields including FRA lands and in village common lands</p>	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of landless, small and marginal farmers • Risks of disease transmission • Increase in expenditure to maintain the health of livestock • Disease outbreak among fish stock may lead to loss of income <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Enhanced household income • Improved agriculture and allied activities practices • Larger community engagement. • Access to better prices of produce as well as cheaper farm inputs; • Informed decision making 	<ul style="list-style-type: none"> • Selection of beneficiary households through community meetings. • Adequate training to “Pashu Sakhi” for information dissemination on risks and impacts • Awareness camps and training camps for participating farmers on risks and impacts 	<ul style="list-style-type: none"> • Agriculture; Fisheries; and livestock Coordinators of SPMU, DPMU and BPIU; • Agriculture Extension Officer of BPIU; Social Specialist of DPMU
<p><i>Agroforestry and Sericulture</i></p>	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of marginalized community 	<ul style="list-style-type: none"> • Selection of beneficiary households through community meetings 	<ul style="list-style-type: none"> • Community Coordinator

<p>Promote the cultivation of locally important and preferably leguminous trees, grasses</p>	<p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Un-utilized community land will come under productive utilization • Enhanced household income • Increased availability of fodder 	<ul style="list-style-type: none"> • Grievance Redress Mechanism that is accessible and responsive to the needs of the community. 	<ul style="list-style-type: none"> • Agriculture Extension Officer of BPIU; Social Specialist of DPMU
<p><i>Technology Demonstrations and Technical Trainings</i> Train producers in INRM, nutrition, horticulture, livestock, fisheries, integrated pest management (IPM), soil health, organic agriculture, and climate smart agriculture (CSA)</p>	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Lack of land title may be an hinderance for women <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> • Improved agriculture practices. • Latest approaches for technology adoption. • Improved women’s access to technology. • Informed decision making 	<ul style="list-style-type: none"> • Both land owner as well as spouse will be members of various committees such as Gauthan Committee; CRC; etc. to ensure participation of women. • Community Coordinator to ensure participation of women by mobilizing women • Intensive consultation with the women members • Conduct awareness camps for women and other marginalized community members 	<ul style="list-style-type: none"> • Community Coordinator • Agriculture Extension Officer of BPIU; Social Specialist of DPMU
<p><i>Support to Livelihood Groups (LGs)</i> Establish a revolving fund from which producers can obtain production loans to create productive assets at the individual level i.e baadi fencing, small livestock sheds, baadi water storage tanks/pits, composting/vermi-composting</p>	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of vulnerable community <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Support grants to LGs as revolving fund 	<ul style="list-style-type: none"> • Selection of beneficiary households through community meetings. • Identification and finalization of land in Gram Sabha • Grievance Redressed Mechanism established 	<ul style="list-style-type: none"> • Community Coordinator • Agriculture Extension Officer of BPIU; Social Specialist of DPMU

<p>structures, small machinery/ tools, rainwater harvesting structures and small, lined ponds on FRA lands (for fishery, irrigation, hardy crops and vegetables on pond ridges), horticulture/agro-forestry planting/support materials</p>	<ul style="list-style-type: none"> • Productive assets at the household level • Improved water availability for fishery and irrigation, thus enhanced household income. • Availability of supply inputs at cost to small and marginal farmers • Start- up kits for beneficiary households 		
<p><i>Common Service Centers (CSCs)</i></p> <ul style="list-style-type: none"> • Pilot evolution of Gauthan as a CSC for GP households • Investment in essential community infrastructure at Gauthans (large scale composting, bio-fertilizer, agroforestry/horticulture nursery, community seed bank, mechanization center, storage, primary processing units with grants and technical support) 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of marginalized community <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Improved livestock management practices • Essential community infrastructure at <i>Gauthans</i> to allow for higher level inputs and services to be provided to households in remote project areas. • Capacity building of <i>Gauthan</i> Committees • Improved household resilience to climate shocks • Increased participation of women in <i>Gauthans</i> and CRCs will ensure gender sensitive requirements. 	<ul style="list-style-type: none"> • Ensure representation of marginalized community in Gauthan Committees • Identification and finalization of land in Gram Sabha • Awareness camps for greater participation of women and other marginalized groups 	<ul style="list-style-type: none"> • Community Coordinator • Agriculture Extension Officer of BPIU; Social Specialist of DPMU

<p><i>Enhancing District, Sub-district and State Capacity for Quality Inputs and Extension Services in Tribal Areas</i></p> <ul style="list-style-type: none"> • Upgrading of key infrastructure and capacity of agriculture, horticulture, livestock, fishery and sericulture departments, KVKs and other local agencies. • Capacity enhancement of the State to engage in diagnosis, surveillance and response mechanisms for emerging infectious diseases related to livestock. • Investments in seed production • Work with multiple partners for multiplication and production of certified seeds. • Support common infrastructure for seed production, processing and marketing. 	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • No adverse impact foreseen. <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Grants to LGs as revolving fund will help finance household level investments • Grants and technical support to Gauthans will help finance infrastructure and activities of the CRC • Establishment of cadre will provide additional employment opportunity • Enhanced capacity of state and district level actors will help in dissemination of improved practices and training inputs. 		
Component 3: Value Addition and Access to Market			
Subcomponent 3.1 Value Addition For Nutrition			
<p>Village level infrastructure support to LGs for post-harvest, primary processing, packaging and storage</p>	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> • Exclusion of marginalized community <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Additional storage facility will help reduce distress selling and retain nutritional value of commodities for longer periods. • Small and marginal farmers will have access to small equipment 	<ul style="list-style-type: none"> • Ensure representation of marginalized community in Gauthan Committees and LGs • Identification and finalization of land in Gram Sabha • Awareness camps for greater participation of women and other marginalized groups 	<ul style="list-style-type: none"> • Community Coordinator • Agriculture Extension Officer of BPIU; Social Specialist of DPMU

	and community warehouses for storage		
Technical support to improve the functioning of rural haats and building the capacity of key market actors for handling local and nutritious foods	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> No adverse social impact or risk <p>Positive Environmental Impacts</p> <ul style="list-style-type: none"> Improve functioning of rural <i>haats</i> will help in easy accessibility and improved household income Greater awareness and nutrition information on foods among farming community 		
Subcomponent 3.2: Value Addition and Accessing Profitable Markets			
Market support activities including certification (organic, fair trade), traceability, packaging, branding;	<p>Adverse Social Impacts and Risks</p> <ul style="list-style-type: none"> Elite capture by large and lead farmers <p>Positive Social Impacts</p> <ul style="list-style-type: none"> Higher value of products thus increased household income Increased productive and commercial potential of the LGs Capacity enhancement of FPOs that will help them expand their business thus increased income Improved market access & information. Cost effective transportation. Employment to landless laborers. 	<ul style="list-style-type: none"> Grievance Redress Mechanism established Awareness camps for greater participation of women and other marginalized groups Ensure representation of marginalized community in FPOs and LGs 	<ul style="list-style-type: none"> Agriculture Extension Officer of BPIU Social Specialist of DPMU
TSAs for value chain analysis in select commodities	Adverse Social Impacts and Risks	<ul style="list-style-type: none"> Selection of TSA after doing a proper Diagnostic Study. 	<ul style="list-style-type: none"> Social Development

	<ul style="list-style-type: none"> • Small and marginal farmers may be excluded from FPOs and decision-making process <p>Positive Social Impacts</p> <ul style="list-style-type: none"> • Identification of mass and niche market will help in increased income • Enhanced capacity of the FPOs • Greater participation of marginalized groups 	<ul style="list-style-type: none"> • Social Development Specialist at SPMU to give inputs on the ToR of the TSA • Awareness camps for greater participation of women and other marginalized groups 	<p>Specialist at SPMU</p> <ul style="list-style-type: none"> • Community Coordinator • Agriculture Extension Officer of BPIU
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9.8.8. Environmental and Social Monitoring

Monitoring of the implementation of the ESCP, the ESMF and identified environmental and social mitigation measures shall be carried out by Environmental Specialist and Social Specialist of SPMU with the help of regular reporting from DPMU and BPIU coordinators. The aim is to verify the main points of compliance with the ESMF and sub-project/activity specific mitigation measures, the progress of implementation, scope of consultations and participation of local communities. An agreed environment and social monitoring report format will be developed based on parameters based on Table 20 that will be used for reporting. Quarterly monitoring reports on the implementation of the ESCP and the ESMF will be submitted by the SPMU to The World Bank. In addition to it, Environmental and Social Audit will be conducted at the end of third year for mid-term audit and end of fifth year for end term audit.

Concurrent Monitoring

The Social and Environment Coordinators of DPMU and BPIU will undertake ongoing monitoring of the ESMF implementation in order to identify issues, good practices and required actions. Reports based on the monitoring will be prepared by them every month and submitted to the SPMU. The reports will be shared with the other implementing agencies.

Periodic Audit

An external audit of the ESMF compliance for sub projects will also be undertaken twice during the implementation of the project – midterm and at the end of the implementation. During implementation, meetings will be organized by PMU inviting all PMUs and PIUs for providing information on the progress of the project work.

- **Mid-term Assessment Study** – this would be undertaken mid-way through the project to ascertain the progress achieved and any mid-course corrections which need to be introduced. It would include indicators to measure progress towards log frame goals and objectives.
- **End-Term Assessment Study** – this will be undertaken at the end of the project period (around the time of project completion) and will assess the achievement of the project during the tenure.

The draft report shall be forwarded to the World Bank for review and suggestions; and upon approval after incorporating the comments, the final audit report will be disclosed.

The Auditors shall:

- Support the PMU in preparing the audit plan.
- Prepare compliance reports for sub-project activities in line with ESMF guidelines and other statutory requirements as applicable through scheduled or unscheduled audits.
- Conducting random field visits and review compliance, especially in environmentally or socially sensitive areas.
- Review the performance of the project through an assessment of periodical monitoring reports submitted by the IAs.
- Share audit findings with the PMU to aid in timely decision making and adopting appropriate mitigation action/s, if necessary.

PMU will review these audit reports and identify technical, managerial, policy or regulatory issues with regards to the compliance of the ESMF requirements. The identified technical

issues will be duly incorporated in the subsequent projects, policy and regulatory issues will be debated internally by the PMU and determine the need for appropriate interventions. These interventions/action plans will be communicated to IAs for actions.

Environmental and social monitoring will start immediately after project effectiveness to ensure the effectiveness of the ESMF.

Table 10. Monitoring parameters

Monitoring Parameters	Responsibility	Target	Frequency
Screening of sub-projects and activities prior to initiation?	SPMU Environment and Social Specialists	All sub projects identified	Continuous
Compliance to ESCP commitments and completion of deliverables	SPMU Environment and Social Specialists	All ESCP agreements	Monthly
Environment Monitoring Parameters			
Area brought under Agro-forestry through project support	SPMU Environment Specialist and Agriculture Specialist with District and Block level Coordinators	To be decided under project component	Quarterly
Volume of NTFP extracted (tons/year)	SPMU Environment Specialist and Value Chain/NTFP Specialist with District and Block level Coordinators	Maintenance at baseline level	Quarterly
Volume of NTFP traded through traditional channels (through Minor Forest Produce Corporation)	SPMU Environment Specialist and Value Chain/NTFP Specialist with District and Block level Coordinators	Maintenance at baseline level	Quarterly
Volume of NTFP processed through project supported processing units/value chains (tons/year)	SPMU Environment Specialist and Value Chain/NTFP Specialist with District and Block level Coordinators	Maintenance at baseline level	Quarterly
Number of farmers adopting Integrated Pest Management (IPM)	SPMU Environment Specialist and Agriculture Specialist with District and Block level Coordinators	Minimum 80 %	Quarterly
Number of trainings imparted under PMP and NMP	SPMU Environment Specialist and Agriculture Specialist with District and Block level Coordinators	100% coverage of farmers	Quarterly
Pesticide consumption in selected 25 blocks (Kg/Ha)	SPMU Environment Specialist and Agriculture Specialist with District and Block level Coordinators	Maintenance at current level	Yearly
Fertilizer (N/P/K) consumption in selected 25 blocks (Kg/Ha)	SPMU Environment Specialist and Agriculture Specialist with District and Block level Coordinators	Maintenance at current level	Yearly
MRL data for selected agriculture and horticulture crops from 10 selected blocks covering all three agro-climatic zones	SPMU Environment Specialist and Agriculture Specialist with District and Block level Coordinators	Maintenance at baseline level	Baseline within one year of project effectiveness Thereafter, bi-annual measurements

Monitoring Parameters	Responsibility	Target	Frequency
Number of Gauthans, processing facilities, haats, etc. provided with waste management support and following	SPMU Environment Specialist with District and Block level Coordinators	Minimum 80%	Quarterly
Inclusion of ESMPs and construction management plans in bid documents	SPMU Environment Specialist	All bid documents (100%)	Continuous
Number of farmers provided training on Good Aquaculture Practice Guidelines	SPMU Environment Specialist and Fisheries Specialist with District and Block level Coordinators	100%	Quarterly
Number of aquaculture ponds/farmers practicing Good Aquaculture Practice Guidelines	SPMU Environment Specialist and Fisheries Specialist with District and Block level Coordinators	Minimum 80%	Quarterly
Number of Local varieties selected for seed production investments	SPMU Environment Specialist and Agriculture Specialist with District and Block level Coordinators	70% of all seed varieties selected	Quarterly
Number and frequency of trainings of livestock management	SPMU Environment Specialist and Livestock specialist with District and Block level Coordinators	100% coverage	Quarterly
Number of livestock units following proper waste management, hygiene and sanitary condition checklist	SPMU Environment Specialist and Livestock specialist with District and Block level Coordinators	Minimum 80%	Quarterly
Social Monitoring Parameters			
Social Parameters	Responsibility		Frequency
Number of consultations conducted by Community Coordinators	Block level Agriculture Extension Officer	For all sub projects identified	Quarterly Reporting
Number of site visits by Agriculture extension Officer of BPIU	Social Specialist of DPMU	At least cover 20% of the sub projects every month	Independent verification in mid-term and end term evaluation
Number of Site Visits by Social Specialist of DPMU	Social Specialist of SPMU	At least 15% of the sub projects covered every month	
Number of site visits by Social Specialist of SPMU	Executive Director	At least 10% of the sub projects covered every month	
Number of community consultations held during sub project identification and finalization	Social Specialist of SPMU	At least three in all sub projects identified (1. Information dissemination; (ii) feedback from the community on project design; and (iii) feedback to community on	

Monitoring Parameters	Responsibility	Target	Frequency
		finalization of the sub project	
Number of households from marginalized groups participated in the community consultations	Social Specialist of SPMU	100%	
Number of women participants in community consultations	Social Specialist of SPMU	At least 60% of the total women population in the participating village	
Number of beneficiaries from marginalized groups	Social Specialist of SPMU	100% of those eligible	
Number of women members in Gauthan Committees and LGs	Social Specialist of SPMU	At least 50%	
Number of members from marginalized groups in Gauthan Committees and LGs	Social Specialist of SPMU	At least 75%	
Number of training for beneficiaries held	Social Specialist of SPMU	At least one for each of the beneficiary per intervention	
Number of women among trainers	Social Specialist of SPMU	At least 33%	
Number of trainees from marginalized groups	Social Specialist of SPMU	100%	
Number of awareness camps organized for women and other marginalized group members	Social Specialist of SPMU	At least one per intervention in each participating village	
Number of grievances received and resolved at block level	Agriculture Extension Officer of BPIU	100% of those not escalated	
Number of grievances escalated to district level and resolved	Social Specialist of DPMU	100% of those not escalated	
Number of grievances escalated to state level	Social Specialist of SPMU	100%	

Implementation Arrangement for ESMF

Department of Agriculture Development and Farmers Welfare and Biotechnology is responsible for the implementation of CHIRAAG. The programme strategies formulated by the department envisages effective convergence among Government departments, CSOs, formal financial institutions, public and private sectors for farmer welfare and development. THE PMU will be robust and dynamic learning organizations with qualified personnel and multi-stakeholder governance structure comprising representatives from agriculture and allied departments. The Department of Agriculture would set up governance and coordination structures to supervise the project activities and State Project Management Unit with multi-disciplinary team of professionals.

The governance structure of CHIRAAG includes a Steering Committee, established to review and approve the State Perspective and Implementation Plans, and Annual Action Plans for release of funds for program implementation. The committee would also oversee implementation and policy formulation for the Mission. The Empowered Committee would be headed by the Agriculture Production Commissioner.

The planning and implementation of the social and environment safeguard measures under the ESMF will be the responsibility of Social Specialist and Environmental Specialist of SPMU, assisted by Social and Environment Coordinators at district, and block level. The Agriculture Extension Officer is Social Coordinator at Block level whereas Rural Development Officer will be District Social Specialist at district level. The social specialists at SPMU will be hired from the market. Designated Environment Specialists will be appointed at SPMU state level and DPMU district level. Community Resource Person will be Environment coordinator at block level. The role and responsibilities of the SD and Environment Specialists are given in Table 21:

Table 11 Roles and Responsibilities

Level	Role and Responsibilities	Reporting
State PMU	<p>The Social Development Specialist at the PMU level will guide the overall process related to social aspects. Specifically, the expert will</p> <ul style="list-style-type: none"> • Work with the district / sub-district level implementing agencies to implement and monitor the social components. • Review the screening process of proposed sub projects to ensure that there is no adverse impact on the community and involvement of women and/or need special focus on tribal involvement. • monitor the social processes followed in execution of the planned activities and realisation of the social inclusion parameters. • Advice SPMU on social issues and guide DPMU and BPIU on policy issues • Prepare quarterly monitoring reports. <p>• The Environment Specialist at the PMU level will guide the overall process related to environmental aspects and implementation of the ESMF.</p>	Head, SPMU

Level	Role and Responsibilities	Reporting
	<ul style="list-style-type: none"> • Work with the district / sub-district level implementing agencies to implement and monitor the environmental components. • Review the screening process of proposed sub projects to ensure that there is no adverse impact on the community and involvement of women and/or need special focus on tribal involvement. • Monitor the environmental processes followed in implementation of the planned activities in PMP, NMP, BMP, Aquaculture Good Practice • Advice SPMU on environmental issues and guide DPMU and BPIU on policy issues. • Shall provide necessary inputs towards formulating training modules and imparting State Level Training. Shall be responsible for coordinating training sessions and awareness programs. • Shall support in conducting the environmental audit. • Prepare quarterly monitoring reports 	
District Project Management Unit	<p>Rural Development Officer as Social Specialist:</p> <ul style="list-style-type: none"> • Co-ordinate with district administration and IAs responsible for implementation of ESMF; • Translation of ESMF in local language and ensure dissemination at state; district level - prepare pamphlets on policy for information dissemination • Coordinate with the district level officials for identification of government / public land and implementation of ESMF; Liaison with district administration for dovetailing of government schemes • Monitor progress of implementation of ESMF highlighting social issues not addressed, to provide for mid-course correction, • Participate in the project level meetings • Coordinate training of project level staff with agencies involved. <p>Environment Coordinator:</p> <ul style="list-style-type: none"> • To coordinate with Environment Specialists at PMU and provide technical support to the CRPs at the Village level for effective implementation of the provisions of ESMF • Co-ordinate with district administration and IAs responsible for implementation of ESMF; • Coordinate with sector coordinators at DPCIU (agriculture, horticulture, fisheries, value chain, construction, irrigation)) to ensure the environmental mitigation measures are implemented as per the ESMF and attached management plans 	Head, DPMU

Level	Role and Responsibilities	Reporting
	<p>like PMP, NMP, BMP and Construction Management Plan</p> <ul style="list-style-type: none"> • Monitor progress of implementation of ESMF highlighting environmental issues not addressed, to provide for mid-course correction • Shall be responsible for filling/reviewing the screening checklists and categorizing the risk of sub-projects and activities • Participate in the project level meetings • Shall assist/ involve in developing modules and training material for District Level Training • Coordinate training of project level staff with agencies involved. • Will prepare monthly progress report and quarterly process documentation report 	
Block Project Implementation Unit	<p>Agriculture Extension Officer</p> <ul style="list-style-type: none"> • Disclosure of ESMF; • Oversee land availability and coordinate with local revenue official for land taking • Dissemination of Project Information at various stages of project as envisaged in the ESMF • Ensure community involvement in every stage of the subproject • Ensure transparency in beneficiary selection • Documentation and disclosure of consultations • Shall be first level of grievance redressal and will guide beneficiaries further to redress their grievances • Responsible for addressable of additional unforeseen impacts during implementation • Ensuring incorporation of social issues in project design • Supervising the ESMF tasks during implementation • Collect data pertaining to the evaluation and monitoring indicators Will prepare monthly progress report and quarterly process documentation report <p>Community Resource Person (Environment Coordinator)</p> <ul style="list-style-type: none"> • Support community-level beneficiaries in identifying and managing any potential environmental risks and impacts • Initiate the filling of the screening checklist for risk categorization for community level activities • Shall undertake site visits to different cluster, common facility, FPOs etc. as directed by the PMU/DPMU 	Head, BPIU

Level	Role and Responsibilities	Reporting
	<ul style="list-style-type: none"> • Carry out supervision and monitoring of the implementation of the ESMFs with the help of identified project functionaries of below level • Shall conduct regular environmental monitoring of the interventions to Field level • Shall be contributing for preparing and compiling the Environmental Monitoring Report 	

Capacity Development for Implementation of ESMF

For the successful implementation of the ESMF, the capacity building program for the officials of CHIRAAG SPMU and other line departments at state, district and block level shall be as follows:

- Orientation program should be organized at the State level for all relevant stakeholders at state level involved in the implementation, supervision and monitoring of the ESMF. The orientation programme shall be organised, one prior to start of the project and then during the mid-term review.
- Next level of orientation on Implementation, Monitoring & Supervision of the ESMF shall be arranged at District level inviting key district level officials who will be involved in ESMF implementation, Monitoring & Supervision work. The orientation programme shall be organised, one prior to start of the project and then during the mid-term review.
- The next level of training should be arranged for lines departments members at district and block level. This shall be organized once in a year to acquaint all experts associated with the implementation, supervision and monitoring of the ESMF and its associated management plans.
- Community level training workshops on orientation/ sensitization on the ESMF will be conducted inviting members of relevant community institution, farmer Group and selected beneficiaries. The workshop shall be organised, one prior to start of the project and then during the mid-term review.
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Table 12 Outline of the Proposed Capacity Building Program on CHIRAG (2020 – 2025)

Sl No	Training Programs and Modules	Contents	Presenter/s	Frequency and Duration	Targeted Participants
A	State Level Training Programs organised by SPMU				
I	Orientation Program			Two days	SPMU, DPMU, BPIU and IAs
	Module 1: About CHIRAG Program	- About the Concept of CHIRAG - Role of Department of Agriculture, GoC and World Bank - Project Components - Project Implementation Set up	Project Director / Assistant Project Director	(First Three modules – together in a day; fourth module on second day)	Module 4 (Day 2): Environmental Specialists attends
	Module 2: ESMF and the Project Cycle and Regulatory Aspects	- World Banks ESS - Concept of ESMF - Applicable regulations: National, State, Local/others - Project Cycle of CHIRAG - ESMF incorporation in Project Cycle during Identification (Screening, Categorization), Preparation, Appraisal, Implementation (Monitoring, Audit)	Environmental / Social Specialists of SPMU, The World Bank	First Year (before initiating implementation), Third and Fifth Year of Implementation	Sub-module on Environment & Social Specialists attends sub-module on Social specifically

Sl No	Training Programs and Modules	Contents	Presenter/s	Frequency and Duration	Targeted Participants
	Module 3: Overview of Locations and Project Activities; Impacts	- Overall Project Locations - Expected impacts: activity wise - Need for mitigation/management	Environmental / Social Specialists of PMU		
	Module 4: Sub-project level Environmental and Social Assessments, Generic Mitigation / Management measures, Institutional Aspects, budget (Case studies)	- Process to be followed, Identification of Environmental and Social Impacts, Impact Identification Methods, Identification of Mitigation Measures, Formulation of Environmental and social Management Plan, Climate Change adaptation and mitigation Plans, gender action plan, Tribal development plan, Implementation, Monitoring, Institutional Mechanism; environmental and social audits and Beneficiary Assessments	Environmental / Social Specialists of NPMU, The World Bank		
II	Implementation Experience Sharing Program			One day; Second, Fourth and Final Year of Implementation	SPMU, DPMU, BPIU and IAs
	Module 1: Experience Sharing on ESMP Implementation	- Experiences on implementation of ESMF in implemented projects - Best Practices-Site visits to project sites	Environmental / Social Specialists of SPMUs		
	Module 2: Review of Audit Results	- Discussion on the results of the E&S audits	Environmental / Social Specialists of SPMU		
	Module 3: Stakeholder Participation and Community Engagement	- Stakeholder Analysis - Participation models / best practices in various sub projects	Environmental / Social Specialists of SPMU		
	Module 4: Best Practices Show-case	- Site visit to select projects to display best practices in any field/aspect	Environmental / Social Specialists of SPMUs		
B	<i>District Level Training Programs (in each project district) organised by DPMU</i>				
I	Orientation Program			Two days;	DPMU, BPIU and
	Module 2: ESMF and the Project Cycle and Regulatory Aspects	- World Banks ESS - Concept of ESMF - Applicable regulations: National, State, Local/others - Project Cycle of CHIRAG	Environmental / Social Specialists at DPMU	First (before initiating implementation), Third and Fifth	IA staff/ Local Body, line departments, CBOs if any;

Sl No	Training Programs and Modules	Contents	Presenter/s	Frequency and Duration	Targeted Participants
		- ESMF incorporation in Project Cycle during Identification (Screening, Categorization), Preparation, Appraisal, Implementation (Monitoring, Audit)		Year of Implementation	Community Coordinators
	Module 3: Overview of Locations and Project Activities; Impacts Module 4: Sub-project level Environmental and Social Assessments, Generic Mitigation / Management measures, Institutional Aspects, budget (Case studies)	- Overall Project Locations - Expected impacts: activity wise - Need for mitigation/management - Process to be followed, Identification of Environmental and Social Impacts, Impact Identification Methods, Identification of Mitigation Measures, Formulation of Environmental and social Management Plan, Climate Change adaptation and mitigation Plans, gender action plan, Tribal development plan, Implementation, Monitoring, Institutional Mechanism; environmental and social audits and Beneficiary Assessments	Environmental / Social Specialists at DPMU Environmental / Social Specialists at DPMU		
II	ESMP Implementation Module 1: Environmental Enhancement and Occupational Health and Safety Module 2: Review of Audit Results	- Clearance / permits / regulatory aspects - Occupational Health & Safety Training - Staff & Labour Code of Conduct - HIV/AIDS prevention Training, Best hygiene practices; gender actions taken - Emergency Response System - Behavioural Training - Implementation of ESMP provisions - Discussion on the results of the annual audit on ESMF – specifically focusing on ESMP implementation, contractors / performance and corrective actions	Environmental / Social Specialists of DPMU Environmental / Social Specialists of DPMU with Auditors, SPMU Specialists	One day; Every Year, starting from Second	IA staff, Contractors, Line departments, BPIU staff

Grievance Redress Mechanism

The Project will establish a Grievance Redress Mechanism (GRM) with the aim to respond to queries or clarifications or complaints about the project and address complaints/concerns and grievances of the stakeholders. The GRM will focus on corrective actions that can be implemented quickly and at a relatively low cost to resolve identified implementation concerns, GRM will also serve as a channel for early warning, helping to target supervision to where it is most needed and identify systemic issues.

The institutional arrangement for the GRM will be established as following:

- **Block level Grievance Officer:** The Agriculture Extension Officer (AEO) of PIU will be first level of contact for grievances. The AEO with the help of community coordinator; and tribal head of the concerned village, within 15 days of receiving the grievance shall communicate the resolution to the aggrieved person. If the aggrieved person is not satisfied, he or she can escalate the issue to district level.
- **District level Grievance Officer.** The District Project Officer (DPO) will be the nodal Grievance Officer at the District Level responsible for receiving, tracking and resolving grievances from the stakeholders. The DPO will be assisted by Social Specialist of district level PMU and a representative each from district administration and tribal department. If grievance remains unresolved for not to the satisfaction of aggrieved person within 15 days of receiving the grievance, the grievance will be escalated to State level.
- **Project Grievance Officer.** The Executive Director of the CHIRAAG will be the ex-officio, senior most official to act as the Grievance Officer for the whole project. The ED will hold quarterly reviews of the functioning of the GRM. The Social Specialist will assist the Executive Director in resolution of grievances. The grievance should be resolved to the satisfaction of the aggrieved person within 15 days of receiving the grievance.
- Status of Grievances received and resolved will be track through the project MIS as well as monthly progress reports from the Districts and Blocks.
- Chhattisgarh Department of Agriculture will be issuing an office order and necessary notifications to establish and operationalize the GRM for the project.

Grievance Channels. Project beneficiaries and stakeholders will be able to submit their grievances, feedback and inquiries to the Project through multiple channels that are summarized below.

- State Government Portal. The existing mechanism of State Government portal for citizen's grievances and enquires will also cover the Project. HPFD receives regular inputs from this portal on grievances that are to be addressed by the HPFD.
- Project specific Portal. Project will maintain a portal with dedicated mechanisms for receiving stakeholder grievances. All grievances, feedback and queries received through the project portal will be collated and compiled by the State Social Expert and included in the progress report. The portal will also provide relevant information on the multiple channels that can be used for submitting grievances to the project.
- Grievance Registers. Grievance Registers will be maintained at District/Block levels to record, track and report on the inflow of stakeholder grievances, enquiries and feedback. The Grievance Registers will help with monitoring and evaluation of the functioning of GRMS.

Grievance Process. All grievances, enquiries and feedback received through the multiple channels will be tracked through a grievance log that would be maintained through the MIS. Grievances will be directed to the competent nodal grievance officer at the state, district, and block levels for resolution, with

recommended timelines. The concerned Grievance Officer will be responding to the grievance/query through phone calls, meetings and letters, in order to resolve the issues. If needed site visits will be undertaken to appraise the exact nature of the stakeholder concerns. The Complainant will be made part of the grievance resolution process and kept updated of the resolution process through phone calls and formal letters. Information material on GRM will also inform the stakeholders about grievance escalation hierarchy that would help the complainant to escalate any unresolved issues to higher level officers, as well as the existing state level GRM channels of government portal and grievance committee chaired by the district collectors. The grievance redress process will be a continuous, transparent and participatory process that would be an integral part of the project's accountability and governance agenda.

GRM Monitoring and Reporting. The functioning of the GRM will be monitored by the Social Expert in the SPMU and the PD. Status and function of the GRM will be documented and shared by the Social Expert in the SPMU through periodic reports and review meetings. GRMs will also be tracked through the project MIS. Regular GRM Review Meetings will held chaired by the PD and convened by the Social Expert of the SPMU. The Social Expert will be responsible for presenting status of all matters/ grievances received during the last quarter/month, and the action taken to resolve them. The GRM mechanism will be notified to the public and stakeholders within the 1st 6 months of project effectiveness. The project website will be posting the status of the GRM status periodically on the website of the project.

Assistance for aggrieved persons belonging to vulnerable groups for accessing legal recourse

If an aggrieved person is not satisfied with the results of grievance redress by the project grievance redress mechanism, such a person can approach the Courts, under the laws of the Country, and the verdicts of the Courts will be final, as per the judicial processes established in India. In general, the legal system is accessible to all such aggrieved persons. However, there might be cases where vulnerable sections face hurdles in accessing the legal recourse system. These hurdles usually include the cost of litigation, knowledge about the legal system, or the lack of awareness about formal legal procedures. To help citizens to access the legal recourse system, each State has an operational mechanism called the Legal Aid Centre, which provides free services including services of lawyers without any cost to the litigants. The social specialist of SPMU will engage with State legal Aid Centre to provide such services to the aggrieved persons. As part of the partnership, the project will reimburse all additional costs that accrue to the State Legal Aid Centres. This facilitation will be available to the aggrieved person(s) if they fulfil the following two conditions: (1) that such aggrieved person(s) belong to any of the following vulnerable sections of the society - below poverty line families, scheduled castes, scheduled tribes; or is disabled, handicapped, orphaned or destitute person; women headed households; and (2) such a person or persons those who have exhausted the provisions of GRM.

Grievance Redress Service of The World Bank. In addition to seeking to resolve their grievances through the GRM established at the government level, "communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project such as this operation may also submit complaints to the Grievance Redress Service (GRS) established by the World Bank. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may also submit their complaint to the WB's independent Inspection Panel, after having brought the complaint to the World Bank's attention through its GRS. Information on how to submit complaints to the World Bank's Grievance Redress Service is available

at <http://www.worldbank.org/GRS>. Information on how to submit complaints to the World Bank Inspection Panel is available at www.inspectionpanel.org.

9.9. Grievance Redress Mechanism

The Project will establish a Grievance Redress Mechanism (GRM) with the aim to respond to queries or clarifications or complaints about the project and address complaints/concerns and grievances of the stakeholders. The GRM will focus on corrective actions that can be implemented quickly and at a relatively low cost to resolve identified implementation concerns, GRM will also serve as a channel for early warning, helping to target supervision to where it is most needed and identify systemic issues.

The institutional arrangement for the GRM will be established as following:

- **Block level Grievance Officer:** The Agriculture Extension Officer (AEO) of PIU will be first level of contact for grievances. The AEO with the help of community coordinator; and tribal head of the concerned village, within 15 days of receiving the grievance shall communicate the resolution to the aggrieved person. If the aggrieved person is not satisfied, he or she can escalate the issue to district level.
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- **Project Grievance Officer.** The Executive Director of the CHIRAAG will be the ex-officio, senior most official to act as the Grievance Officer for the whole project. The ED will hold quarterly reviews of the functioning of the GRM. The Social Specialist will assist the Executive Director in resolution of grievances. The grievance should be resolved to the satisfaction of the aggrieved person within 15 days of receiving the grievance.
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Grievance Channels. Project beneficiaries and stakeholders will be able to submit their grievances, feedback and inquiries to the Project through multiple channels that are summarized below.

- **State Government Portal.** The existing mechanism of State Government portal for citizen's grievances and enquires will also cover the Project. HPFD receives regular inputs from this portal on grievances that are to be addressed by the HPFD.
- **Project specific Portal.** Project will maintain a portal with dedicated mechanisms for receiving stakeholder grievances. All grievances, feedback and queries received through the project portal will be collated and compiled by the State Social Expert and included in the progress report. The portal will also provide relevant information on the multiple channels that can be used for submitting grievances to the project.

- Grievance Registers. Grievance Registers will be maintained at District/Block levels to record, track and report on the inflow of stakeholder grievances, enquiries and feedback. The Grievance Registers will help with monitoring and evaluation of the functioning of GRMS.

Grievance Process. All grievances, enquiries and feedback received through the multiple channels will be tracked through a grievance log that would be maintained through the MIS. Grievances will be directed to the competent nodal grievance officer at the state, district, and block levels for resolution, with recommended timelines. The concerned Grievance Officer will be responding to the grievance/query through phone calls, meetings and letters, in order to resolve the issues. If needed site visits will be undertaken to appraise the exact nature of the stakeholder concerns. The Complainant will be made part of the grievance resolution process and kept updated of the resolution process through phone calls and formal letters. Information material on GRM will also inform the stakeholders about grievance escalation hierarchy that would help the complainant to escalate any unresolved issues to higher level officers, as well as the existing state level GRM channels of government portal and grievance committee chaired by the district collectors. The grievance redress process will be a continuous, transparent and participatory process that would be an integral part of the project's accountability and governance agenda.

GRM Monitoring and Reporting. The functioning of the GRM will be monitored by the Social Expert in the SPMU and the PD. Status and function of the GRM will be documented and shared by the Social Expert in the SPMU through periodic reports and review meetings. GRMs will also be tracked through the project MIS. Regular GRM Review Meetings will held chaired by the PD and convened by the Social Expert of the SPMU. The Social Expert will be responsible for presenting status of all matters/ grievances received during the last quarter/month, and the action taken to resolve them. The GRM mechanism will be notified to the public and stakeholders within the 1st 6 months of project effectiveness. The project website will be posting the status of the GRM status periodically on the website of the project.

Assistance for aggrieved persons belonging to vulnerable groups for accessing legal recourse

If an aggrieved person is not satisfied with the results of grievance redress by the project grievance redress mechanism, such a person can approach the Courts, under the laws of the Country, and the verdicts of the Courts will be final, as per the judicial processes established in India. In general, the legal system is accessible to all such aggrieved persons. However, there might be cases where vulnerable sections face hurdles in accessing the legal recourse system. These hurdles usually include the cost of litigation, knowledge about the legal system, or the lack of awareness about formal legal procedures. To help citizens to access the legal recourse system, each State has an operational mechanism called the Legal Aid Centre, which provides free services including services of lawyers without any cost to the litigants. The social specialist of SPMU will engage with State legal Aid Centre to provide such services to the aggrieved persons. As part of the partnership, the project will reimburse all additional costs that accrue to the State Legal Aid Centres. This facilitation will be available to the aggrieved person(s) if they fulfil the following two conditions: (1) that such aggrieved person(s) belong to any of the following vulnerable sections of the society - below poverty line families, scheduled castes, scheduled tribes; or is disabled, handicapped, orphaned or destitute person; women headed households; and (2) such a person or persons those who have exhausted the provisions of GRM.

Grievance Redress Service of The World Bank. In addition to seeking to resolve their grievances through the GRM established at the government level, "communities and individuals who believe that they are

adversely affected by a World Bank (WB) supported project such as this operation may also submit complaints to the Grievance Redress Service (GRS) established by the World Bank. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may also submit their complaint to the WB's independent Inspection Panel, after having brought the complaint to the World Bank's attention through its GRS. Information on how to submit complaints to the World Bank's Grievance Redress Service is available at <http://www.worldbank.org/GRS>. Information on how to submit complaints to the World Bank Inspection Panel is available at www.inspectionpanel.org.

9.10. Gender Action Plan

Mainstreaming gender equity and empowerment is already a focus area in the project. In the sub projects, activities related to livelihood restoration will address women's needs. A Gender Framework is being designed under the project as part of ESMF which will help in analysing gender issues during the preparation stage of sub project and design interventions. The project also focuses on the linkage between gender and poverty, by identifying, for example, identifying households headed by women while selecting beneficiaries.

CHIRAAG emphasizes inclusive community development through a number of integrated interventions, especially taking into consideration the vulnerable communities – sustained by traditional means of utilizing natural resources. In order to make the project more inclusive and participatory, it is required that women associate themselves in different activities which they find feasible. This approach of inclusion and equity, specifically involvement and engagement of women will be helpful to attain social justice and reduce marginalization of women and empower them to avail maximum benefit from the project.

Thus, incorporating gender and other social issues in the development projects helps to improve project performance. A gender approach in the overall project framework takes care of key gender issues and brings in parity in association and participation of women and minimises the gap between males and females at the project level. A gender approach is also a way to comprehend the impacts on the women beneficiaries and ensures equality in project induced wellbeing.

Once the interventions and exact location is identified, consultations will be organised with different stakeholders to understand gender issues and possible measures that can help women in ensuring their participation in the overall process. The consultations will help to identify certain key issues pertaining to women and their involvement in different livelihood activities as well as other activities which will directly or indirectly impact their lives. The quantitative and qualitative analysis of interventions will bring out sex disaggregated data and issues related to gender disparity, needs, constraints, and priorities; as well as understanding whether there is a potential for gender based inequitable risks, benefits and opportunities. Based on the analysis, the specific interventions will be designed and if required gender action plan will be prepared. The overall monitoring framework of the project will include sex disaggregated indicators and gender relevant indicators.

9.10.1. Policy Provision

Directions in Constitution

The constitution of India provides provisions to secure equality in general and gender equality in particular. Various articles in the Constitution safeguard women's rights by putting them at par with men socially, politically and economically. The Preamble, the Fundamental Rights, Directive Principles of State Policies (DPSPs) and other constitutional provisions provide several general and special safeguards to secure women's human rights. The Preamble to the Constitution of India assures justice, social, economic and political;

equality of status and opportunity and dignity to the individual. Thus, it treats both men and women equal.

The policy of women empowerment is well entrenched in the Fundamental Rights enshrined in our Constitution. For instance:

1. Article 14 ensures to women the right to equality;
2. Article 15(1) specifically prohibits discrimination on the basis of sex;
3. Article 15(3) empowers the State to take affirmative action's in favour of women;
4. Article 16 provides for equality of opportunity for all citizens in matters relating to

employment or appointment to any office. These rights being fundamental rights are justifiable in court and the Government is obliged to follow the same.

Directive principles of State Policy also contains important provisions regarding women empowerment, and it is the duty of the government to apply these principles while making laws or formulating any policy. Though these are not justifiable in the Court but these are essential for governance nonetheless. Some of them are:

1. Article 39 (a) provides that the State to direct its policy towards securing for men and women equally the right to an adequate means of livelihood.
2. Article 39 (d) mandates equal pay for equal work for both men and women.
3. Article 42 provides that the State to make provision for securing just and humane conditions of work and for maternity relief.

Fundamental Duties

Fundamental duties are enshrined in Part IV-A of the Constitution and are positive duties for the people of India to follow. It also contains a duty related to women's rights. Article 51 (A) (e) expects from the citizen of the country to promote harmony and the spirit of common brotherhood amongst all the people of India and to renounce practices derogatory to the dignity of women.

Other Constitutional Provisions

Through the 73rd and 74th Constitutional Amendment of 1993, a very important political right has been given to women which is a landmark in the direction of women empowerment in India. With this amendment, women were given 33.33 percent reservation in seats at different levels of elections in local governance i.e. at Panchayat, Block and Municipality elections. Thus, it can be seen that these Constitutional provisions are very empowering for women and the State is duty bound to apply these principles in taking policy decisions as well as in enacting laws.

Specific Laws for Women

Some specific laws, which were enacted by the Parliament in order to fulfil the Constitutional obligation of women empowerment are;

1. The Equal Remuneration Act, 1976.
2. The Dowry Prohibition Act, 1961.
3. The Immoral Traffic (Prevention) Act, 1956.
4. The Maternity Benefit Act, 1961.
5. The Medical termination of Pregnancy Act, 1971.
6. The Commission of Sati (Prevention) Act, 1987.
7. The Protection of Women from Domestic Violence Act, 2005
8. The Prohibition of Child Marriage Act, 2006.
9. The Pre-Conception & Pre-Natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994.
10. The Sexual Harassment of Women at Work Place (Prevention, Protection and) Act, 2013.

Above mentioned and several other laws are there which not only provide specific legal rights to women but also give them a sense of security and empowerment.

International Commitments

India is a part of various International conventions and treaties which are committed to secure equal rights of women. One of the most important among them is the Convention on Elimination of All Forms of Discrimination against Women (CEDAW), ratified by India in 1993. Other important International instruments for women empowerment are: The Mexico Plan of Action (1975), the Nairobi Forward Looking Strategies (1985), the Beijing Declaration as well as the Platform for Action (1995) and the Outcome Document adopted by the UNGA Session on Gender Equality and Development & Peace for the 21st century, titled "Further actions and initiatives to implement the Beijing Declaration and the Platform for Action". All these have been whole-heartedly endorsed by India for appropriate follow up.

National Policy for Woman

In the year 2001, the Government of India launched a National Policy for Empowerment of Women which was revised in the year 2016. The National Policy for Women, 2016 (draft) having the vision of "A society in which, women attain their full potential and are able to participate as equal partners in all spheres of life and influence the process of social change". The objectives of the policy are

1. Creating a conducive socio-cultural, economic and political environment to enable women enjoy de jure and de facto fundamental rights and realize their full potential;
2. Mainstreaming gender in all-round development processes/programmes/projects/ actions;
3. A holistic and life-cycle approach to women's health for appropriate, affordable and quality health care;
4. Improving and incentivizing access of women/ girls to universal and quality education;
5. Increasing and incentivizing work force participation of women in the economy;
6. Equal participation in the social, political and economic spheres including the institutions of governance and decision making;
7. Transforming discriminatory societal attitudes, mindsets with community involvement and engagement of men and boys;
8. Developing a gender sensitive legal-judicial system;
9. Elimination of all forms of violence against women through strengthening of policies, legislations, programmes, institutions and community engagement;
10. Development and empowerment of women belonging to the vulnerable and marginalized groups;
11. Building and strengthening stakeholder participation and partnerships for women empowerment;
12. Strengthen monitoring, evaluation, audit and data systems to bridge gender gaps.

World Bank's Approach

The World Bank's approach to promoting gender equality makes all staff responsible for ensuring that the Bank's work is responsive to the differing needs, constraints, and interests of males and females in client countries. Gender equality is now a core element of the Bank's strategy to reduce poverty. There is clear understandings that until women and men have equal capacities, opportunities and voice, the ambitious poverty-reduction agenda set out in the Sustainable Development Goals will be difficult to achieve.

Three major tools are used to identify and deal with gender issues in the project cycle:
gender analysis, project design, and policy dialogue.

1. Gender analysis should be an integral part of the initial social assessment at the screening stage itself. The issues identified can be scaled up during the feasibility and detailed analysis can be carried out during the project preparation stage.
2. The project designs should be gender responsive based on gender analysis and should be included in the ESIA document. The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action.
3. Consultations will be organized with different stakeholders to understand gender issues and possible measures that can help women in ensuring their participation in the overall process. The consultations helped to identify certain key issues pertaining to women and their involvement in the proposed interventions.

9.10.2. Gender Action Plan through the Project Cycle

Gender analysis should be an integral part of the initial social assessment at the screening stage itself. The issues identified can be scaled up during the feasibility and detailed analysis can be carried out during the project preparation stage. The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action. Listed below are the key action points:

a) General Check list

1. Identify key gender and women's participation issues.
2. Identify the role of gender in the project objectives.
3. Prepare terms of reference (TOR) for the gender specialist or social development specialist of the client
4. Conduct gender analysis as part of the overall Social Assessment.
5. Draw up a socioeconomic profile of key stakeholder groups in the target population and disaggregate data by gender.
6. Examine gender differences in knowledge, attitudes, practices, roles, status, wellbeing, constraints, needs, and priorities, and the factors that affect those differences.
7. Assess men's and women's capacity to participate and the factors affecting that capacity.
8. Assess the potential gender-differentiated impact of the project and options to maximize benefits and minimize adverse effects.
9. Identify government agencies and nongovernmental organizations (NGOs), community-based organizations (CBOs), and women's groups that can be used during project implementation. Assess their capacity.
10. Review the gender related policies and laws, as necessary.
11. Identify information gaps related to the above issues.
12. Involve men and women in project design.
13. Incorporate gender findings into the project design.
14. Ensure that gender concerns are addressed in the relevant sections (including project objectives, scope, poverty and social measures, cost estimates, institutional arrangements, social appendix, and consultant's TOR for implementation and M & E support).
15. List out major gender actions.
16. Develop gender-disaggregated indicators and monitoring plan.

b) Core Requirement for Mainstreaming Gender

1. All data should be disaggregated by gender, caste, ethnicity, location, and age
2. Issues of division of labour, access to resources and decision-making power (who is doing what, who has access to what, who makes the ultimate decision) have to be assessed for their gender differential impact on women and men of different social identity groups.
3. Assessment of policies, programs, institutional arrangements, human resources issues, and M&E system has to be done from a gender perspective of the project, project authorities and community groups.

c) Steps of Gender Mainstreaming

Three major tools will be used to identify and deal with gender issues in the project cycle: initial gender assessment, gender action plan, and policy note. The initial gender assessment should be an integral part of the initial social assessment at the screening stage. The issues identified can be scaled up during the feasibility study and detailed analysis can be carried out during the detailed project report stage. The project design should be gender responsive based on gender analysis and should be included in the detailed project report in the form of a gender action plan. The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action (table – 63).

Table - 63: Steps for gender Mainstreaming

Focus of Intervention	Inputs and Process Indicators	Data Source
Policy checklist	<ol style="list-style-type: none"> i. What are the requirements of the national gender equality policy, if any, and the executive support provided to it? ii. Which ministry focal point or unit is responsible for advocacy and gender inclusion at the policy and project level? iii. Do the agriculture sector strategy address gender issues (labor issues, e.g. promotion of gender in labor-based work, participation of women in prioritization and design of works, measures to eliminate discriminatory labor or contracting practices, HIV/AIDS prevention and treatment) in its works and contracts? iv. Do policies for agriculture projects and planning procedures explicitly take gender into account: identification of gender gaps and gender-specific needs, capacities, constraints, and opportunities inclusion of socioeconomic empowerment as an integral element? v. Are women and men civil society stakeholders consulted on policies and programs; included in teams analyzing policy and strategy; included in decision making? vi. Is there a system for monitoring the implementation of gender and other components of sector policies and strategies? 	Ministry of Women and Child Development; State department of women and child; Ministry of Agriculture; State department of agriculture

Focus of Intervention	Inputs and Process Indicators	Data Source
	<ul style="list-style-type: none"> vii. Sex disaggregation of beneficiary data and key gender indicators outreach and capacity building on gender and other social dimensions grants for addressing gender issues? viii. Are there training sessions on gender including gender-sensitive planning? ix. Is stakeholder consultation facilitated? x. Is there participation in implementing agencies or community organizations? xi. Are gender sensitization workshops held for men and women of agriculture ministry/department staff and implementing agencies, and do they consider knowledge gaps in gender elements in the sector? xii. How many women are represented on gender boards and in works prioritization and decision-making forums related to the planning, implementation, monitoring, and evaluation of projects? 	
Project cycle: Project identification, preparation, and design	<ul style="list-style-type: none"> i. Conduct a rapid assessment to identify and quantify potential gender-related issues and impacts affecting access, risks, benefits, and participation ii. Identify disadvantaged or vulnerable groups, including who they are, where they live, and their socioeconomic characteristics (scheduled castes, women-headed households, widows, disabled) iii. Examine the impacts of the project on these groups iv. Identify the gender-specific implications of beneficiary selection v. Identify gender-specific implications of employment opportunities to be created under the project vi. Identify gender-specific constraints in receiving information and providing feedback and complaints on the project vii. Discuss identified gender and other social issues in the project viii. Include both females and males affected by the project in stakeholder consultations ix. Use separate focus groups to enable women to voice their views separately from men x. Analyze the data collected to highlight gender differences in uses and the underlying causes of women's and men's project related problems xi. Examine relevant inter-sectoral linkages, such as access to health services, HIV/AIDS prevention, and access to markets; credits; and schools xii. Ensure that analysis of gender differences in needs, use, constraints, and access are 	Stakeholder and beneficiary assessments, project concept note, social assessments (household surveys and focus group discussions in project influence area), mid-term and end term evaluation surveys

Focus of Intervention	Inputs and Process Indicators	Data Source
	<p>included in the terms of reference for the social assessment</p> <ul style="list-style-type: none"> xiii. Identify the gender-related issues that need to be addressed to ensure the effectiveness and sustainability of the project xiv. Develop approaches for addressing the gender-related issues identified and creating opportunities for equal access to project benefits for men and women, including training, organizational capacity building, grants programs, targets for women's participation xv. Develop indicators for measuring progress on gender-related issues within the relevant project components (e.g. institutional arrangements, benefits, livelihood opportunities, awareness building, consultations, complaint handling) 	
Project cycle: Methodology	<ul style="list-style-type: none"> i. Desk review (secondary literature) ii. Review available information (e.g. statistics, gender analysis, documents of similar projects, if available) in the project area and the socioeconomic profile of the target population iii. Review the relevant legal framework (e.g. inheritance law), policy framework and institutional framework (e.g. current administrative system, grievance handling, awareness creation) and their gender implications iv. Review government programs for encouraging equal opportunities and participation of women in the project influence area v. Household surveys (primary survey) vi. Draw up gender-disaggregated socioeconomic and cultural profiles and identify the problems faced by and needs of the target population vii. Conduct group discussions, random interviews, and transect walks to study the activity pattern viii. Collect quantitative information ix. Participatory methodologies (e.g. participatory rapid appraisal) x. Collect qualitative information that cannot be collected through surveys (socio cultural norms, behavioral questions) xi. Define ways in which men and women beneficiaries and other stakeholders, especially poor women, can equally participate in the project xii. Map out the target areas and assess which are the most disadvantaged areas and sections of society (widows, female-headed households, 	Other projects in the country/state and gender policy documents, household surveys, national sample survey, census data, participatory rapid appraisal of target area, focus group discussions, consultations with beneficiaries

Focus of Intervention	Inputs and Process Indicators	Data Source
	<p>disabled men and women) in terms of access to services and poverty level</p> <ul style="list-style-type: none"> xiii. Identify major stakeholder groups and their positions xiv. Staffing xv. Ensure adequate gender balance in teams of IAs xvi. Select field team members with gender awareness, local knowledge, cultural understanding, and willingness to listen 	
Project cycle: Data collection	<ul style="list-style-type: none"> i. Socioeconomic profile: Gender-disaggregated data ii. Demographic: Gender, sex ratio, caste, marriageable age, female-headed households, migration trend, household size iii. Economic: Income level and source, expenditure pattern and decision making, access to land and resources iv. Health: Population growth rate, infant and adult mortality rate, availability of medical facility, reproduction-related decision making, HIV/AIDS awareness v. Education: Literacy, school enrolment and dropout ratio, child labor vi. Status of women: Political representation and awareness, socio cultural perceptions and practices of men and women, domestic violence, trafficking, gender-discriminatory policies and laws, gender roles, responsibilities and gender division of labor in productive areas (e.g. agriculture, income-generating activities) and reproductive areas (e.g. household chores, child care), and time allocation for each responsibility vii. Fuel, fodder, water, and sanitation viii. Availability, quantity, and quality of fuel and fodder, who collects fuel, fodder, and water for the family, sources of drinking and agricultural water, how men and women store and use water collected, dry season management, how far away these resources are located, time spent on collection of the resources, mode of transport used to collect the resources, availability of sanitation service (chargeable or not, who runs it) ix. Access, control, constraints x. How men and women differ in their access to and control of land, agricultural inputs, extension, markets, employment opportunities, and credit xi. Whether external assistance is provided to improve access and control, and by whom xii. Participation xiii. Factors affecting the level of participation of men vs. women, incentives and constraints, 	District, block, and village census data, national sample survey data, health survey data, household surveys, focus group discussions, behavioral surveys, observation

Focus of Intervention	Inputs and Process Indicators	Data Source
	<p>means of information dissemination about the project preferred by men vs. women, labor demand for men vs. women, which modes of participation men and women favor (e.g. decision making in planning, cash contribution, labor contribution for construction, training, financial management, organizational management)</p> <p>xiv. Perception of benefits and impacts</p> <p>xv. Men's and women's perceptions of positive and negative impacts of the project, how negative effects can be mitigated</p>	
<p>Project implementation: Gender action plan</p>	<ol style="list-style-type: none"> i. Prepare a gender action plan. Under this: ii. Undertake quality social and gender analyses. Identify constraints to participating and benefiting men and women; develop strategies for each component to ensure that men and women participate and benefit equally iii. Revisit gender design strategies at inception to develop a detailed gender action plan. The plan needs to be tested and reviewed early in implementation; identify detailed activities, targets, resources, and responsibilities for implementation iv. Citizen Engagement Framework: The gender action plan must be fully owned and understood by the executing agency. Use a participatory and flexible approach to developing the plan; a strong rationale that is directly linked to overall project objectives is needed for targeting and working with women v. Linking beneficiary targets to project objectives to understand the rationale for focusing on women and monitoring of participation and benefits. vi. Include gender capacity building in the gender action plan. Both formal training and ongoing support and mentoring are needed for developing skills, ownership, and commitment. vii. Provide adequate skills and resources for the implementation of the gender action plan. Long-term gender specialists in the executing agency or project team and adequate resources for implementation of actions; nongovernmental organizations and other agencies contracted to implement project activities should have a demonstrated gender capacity. viii. Monitor and follow up gender-related targets and activities. Systematic follow-up to ensure that policy reforms and gender actions are implemented; routine monitoring and 	<p>Gender expertise, Discussion, and participation with beneficiaries, separate focus group discussions with men and women, government departments, labor and employment laws, provisions in project and budget, learning approaches from good practice cases</p>

Focus of Intervention	Inputs and Process Indicators	Data Source
	reporting; gender-sensitive indicators and gender-related risks must be included in project logical frameworks.	
Project implementation: Participation strategy	<ul style="list-style-type: none"> i. Develop a participation strategy for men and women during project implementation and monitoring and evaluation: ii. Avoid overly high expectation of women's participation and develop a practical schedule for participation iii. Planning. Conduct women-specific consultation to take their views and suggestions on the design. Any mechanism established during the project design, such as grievance mechanisms, should have adequate representation of women iv. Training options. Identify ways to link up with income generation, literacy, and other activities to support an integrated approach to poverty reduction and women's empowerment v. Staffing, scheduling, procurement, and budgeting. Hire female project staff vi. Ensure adequate and flexible budgeting to allow a learning approach (e.g. training budget, consulting service budget for women's organizations) 	Gender expertise, Discussion, and participation with beneficiaries, separate focus group discussions with men and women, government departments, labor and employment laws, provisions in project and budget, learning approaches from good practice cases
Project cycle: Impact	<ul style="list-style-type: none"> i. Establish whether men and women perceive positive and negative impacts of the project differently, and assess how the negative effects can be mitigated ii. Consider whether the benefits are likely to be distributed equitably iii. For disadvantaged or vulnerable groups, find out who they are, where they live, what are their socioeconomic characteristics (scheduled castes, women-headed households, widows, disabled), and how the project will affect them 	Project monitoring reports, audits, group discussions, household survey, mid-term evaluation
Monitoring and Evaluation: Feedback mechanism	<ul style="list-style-type: none"> i. Develop a feedback mechanism in which both males and females have a voice ii. Disaggregate all relevant indicators by gender, such as the number of women gaining access to credit, increase in women's income, and career prospects for project-trained women iii. Integrate sex-disaggregated beneficiary data and relevant measures of gender equality into the baselines and other routine monitoring and evaluation processes iv. Measure the impacts of the project components on women and men v. Assess the value added by women's participation in the project 	Focus group discussions, project monitoring reports; end term evaluation
Monitoring and Evaluation:	i. Develop gender-informed results indicators for monitoring. These include:	Review of gender-informed results indicators

Focus of Intervention	Inputs and Process Indicators	Data Source
Gender-informed indicators	<ul style="list-style-type: none"> ii. Increased income, employment, and entrepreneurship. Number of women and men employed in the sector, number of women and men employed in solar power project; increased women's and men's income from produce marketed using project services. iii. Time saving and increased productivity. Reduced women's and men's time for domestic work (collection of water, fuel wood, food crop collection, fodder, etc.); increased productive time used for economic activities. iv. Improved affordability. Percentage increase of income among women and men; increased participation in decision making; number of women and men participating in community decision meetings; reduced incidence of harassment, crime, and human trafficking; increased awareness of HIV/AIDS transmission and prevention; number of women and men leading committees; number of women and men managers in agencies; women control their income and establish bank accounts in their names; increased recognition of women's contributions to the household and community 	

9.10.3. Key Activities in Project Cycle

The involvement of women groups in the identification of impacts and opportunities through project activities shall form the basis for the preparation of gender sensitive project activities. The procedure to be followed and process and outcome are presented in the following matrix table – 64.

Table – 64: Opportunities for Involvement of Women during Project stages

Project Stages	Key Activities	Responsibility
Planning Stage	<ul style="list-style-type: none"> • Identify gender concerns/issues related to the project with due consultation with women group • Organize women stakeholders' meetings to inform about the project activities, its benefits and key expectations from the project. • Sensitize and discuss the project and its components. • Sensitize other stakeholders on gender concerns/issues; • Identify key areas of constraints that may be improved through the project; • Prepare project component wise activity plan where women can be engaged in different project activities. 	Social Development Specialist of PMU and IAs

Project Stages	Key Activities	Responsibility
Implementation Stage	<ul style="list-style-type: none"> • Implementation of provisions of project activity specific plan addressing gender concerns as per the GAP; • Monitoring engagement of women in different project activities, skilled and unskilled works; • Monitor safety and security measures of women in work and camp sites; • Monitor women specific provisions and facilities created in the project site and camps. • Supervising adherence to wage payment norms 	Social Development Specialists of PMU and IAS; External M&E Agency
Post-Implementation Stage	<ul style="list-style-type: none"> • Continuation of activities initiated under the project; • Monitoring sustenance of project inputs and its benefits accessed by women 	Social Development Specialist of PMU; End-term evaluation agency

9.10.4. Monitoring Gender Action Plan

The indicators, frequency, and agency recommended for monitoring are presented in table 65.

Table – 65: Monitoring indicators for gender action plan

Aspects	Monitoring Indicators (Process and Outcome)	Frequency	Monitoring Responsibility
Economic	<ul style="list-style-type: none"> • No. of women engaged in different activities and their proportion to the total workforce; • Days of engagement of women in different wage / non-wage activities and proportional days of engagement in comparison to their male counterpart; • Growth in income of women due to such engagements; • Reduction in no. of days of migration (if migrating earlier); • No. of women having additional/new market oriented employable skills for self-engagement; • No. of women accessed different govt. schemes/provisions including beneficial enrolment in agricultural interventions; • Improvement in asset holding of women (productive and household assets). 	<ul style="list-style-type: none"> • Planning Stage: for the base line data • Half yearly Monitoring • Mid Term Review (MTR) • Final Impact Assessment 	PMU Third party Monitor agency
Social	<ul style="list-style-type: none"> • Improvement of association of women in local institutional and decision-making process (membership, management position, etc.); 	<ul style="list-style-type: none"> • Planning Stage: for the base line data • Half yearly Monitoring 	PMU Third party Monitor agency

Aspects	Monitoring Indicators (Process and Outcome)	Frequency	Monitoring Responsibility
		<ul style="list-style-type: none"> • Mid Term Review (MTR) • Final Impact Assessment 	

9.10.5. Implementation Arrangements

The preparation, implementation, and monitoring of the Gender Action Plan (GAP) is the responsibility of the project implementing entities. The Social Development specialist, at the PMU level, will facilitate and supervise this process of preparation and implementation of the Action Plan. All efforts will be made to coordinate and work with associated line departments and other department, more specifically the Agriculture department, Women and Child Development department, State Livelihood Mission, Panchayati Raj, and Rural Development department to help dovetailing with their development programs for the socio-economic development of women.

9.11. Budget for ESMF

As the technical details have not yet been finalized for the project investments, an estimated lump sum amount has been earmarked for ESMP implementation. This is an estimate and will need to be updated once the sub projects are finalized. An implementation period of 60 months is considered for the preparing following costs.

Table 13: Indicative Cost of Environmental and Social Management Framework Implementation

SN	Budget Heads	Unit	Qt.	Unit	Qt.	Unit Cost (INR)	Total Cost (INR)
A	Human Resource						
	State						
	PMU-Social & Gender Expert	No.	1	Month	60	100000	7,326,120.00*
	PMU-Environment Expert	No.	1	Month	60	100000	7,326,120.00*
	District						
	Social Coordinator	No.	14	Month	60	70000	50,400,000.00
	Environmental Coordinator	No.	14	Month	60	70000	50,400,000.00
	Block						
	Environmental Coordinator	No.	25	Month	60	45000	52,500,000.00
	Social Coordinator	No.	25	Month	60	45000	52,500,000.00
	Village						
	Community Coordinators	No.	400	Month	30	25000	240,000,000.00
	Sub Total						457,800,000.00
B	Capacity Building on E&SS						
	Environmental Coordinator	Days	40	Person	10	1000	400,000.00
	Social Coordinator	Days	40	Person	10	1000	400,000.00
	Community Coordinators	Days	400	Person	10	1000	4,000,000.00
	Sub-Total						4,800,000.00
C	Demonstration						
	INM	No.	25	Blocks	40	15000	15,000,000.00
	IPM	No.	25	Blocks	40	15000	15,000,000.00
	Climate Resilient Farming Tech.	No.	25	Blocks	40	15000	15,000,000.00
	Sub-Total						45,000,000.00
D	Awareness Drive						
	Villages / Community	No.	25	Blocks	40	10000	10,000,000.00
	IEC Materials	No.	2678	Villages	40	100	10,712,000.00
	Sub-Total						20,712,000.00
E	ESMF Monitoring (Quarterly)	Quarter	4	Year	5	50000	1,000,000.00

	<i>Environment & Social Audit</i>	No.	2	Days	25	25000	1,250,000.00
	Sub-Total						2,250,000.00
F	<i>Maintenance of GRM</i>						250,000.00
G	<i>Implementation of TDP</i>						20,000,000.00
G	<i>Implementation of GAP</i>						10,000,000.00
	Total						563,464,240.00

- Annual incremental increase of 10%

9.12. References

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ANNEXURE – 1

VILLAGE PROFILE/STAKEHOLDERS INFORMATIONS

Name of village :.....
 Name of block :.....
 Name of district :.....

1. Demographic Features:

S. No	Particulars	
1.	Population	
	(a) Total	
	(b) Male	
	(c) Female	
	(d) Schedule caste	
	Male	
	Female	
	(e) Schedule tribe	
	Male	
	Female	
	(f) Other backward class	
	Male	
	Female	
	(g) General	
	Male	
	Female	
	(h) Literacy (%)	
	Male	
	Female	

S. No	Particulars			
2.	Industrial categories of workers			
	Main workers			
	i. Cultivators			
	ii. Agriculture labour			
	iii. Household industry, manufacturing, preserving servicing and repairs			
	iv. Other workers			
	v. Marginal workers			
	vi. Non-workers			
3.	Operational holdings	No. of Farmers	Area under Cultivation	Area under Badi
	i. Marginal farmers (> 1 ha)			
	ii. Small farmers (1-2 ha)			

	iii.	Semi-medium (2-4 ha)			
	iv.	Medium farmers (4-10 ha)			
	v.	Large farmers (above 10 ha)			

Facilities	Available in village Yes/No	If not, then distance from village (km)
Primary health center		
Private medical practitioner		
Private farm input shop		
Govt input supply center		
Implement service center		
General store		
Agricultural produce market		
Market for milk		
Milk cooperatives		
Forest produce market		
Wool market		
Poultry market		
Fish market		
Fruit & vegetable nursery		
Veterinary hospital		
Artificial insemination center		
Village extension officer		
Meat shops		
Others		

2. Basic Infrastructural Facilities:

Facilities	Available in village Yes/No	If not, then distance from village (km)
Primary school		
Secondary school		
Public school		
Nearest Motorable road		
Post office		
Telephone office		
Bank Branch		
Cooperative society		
Farm produce storage facility		
Agro-processing units		
Fair price shop		

3. Location of the village

Particulars	Name	Distance (km)
Development block		
District headquarters		
Nearest city		
Nearest Bus/Railway station		
Others (specify)		

4. Infrastructure Development and Economic Opportunities:

Items	Particulars

Roads	
Electricity	
Diesel supply	
Livelihoods from jungles	
Road models in agriculture	
Nearest Development poles	

5. Cropping pattern of the village:

S.No	Particulars	Area	Production	Yield
	Kharif			
	a. Paddy			
	Rabi			
	a. Wheat			
	Summer			
	a. Paddy			

6. Land use classification:

S. No	Particulars	Area ('000 ha.)
1	Total Geographical area	
2	Area under forest	
3	Land not available for cultivation	
4	Other uncultivated land excluding fallow land	
5	a. Permanent pasture and other grading land	
6	b. Cultivable waste land	
7	Fallow land	
8	a. Fallow land other than current follows	
9	b. Current fallow land	
10	Net Area sown	
11	Area sown more than once	
12	Gross cropped area	
13	Cropping intensity (%)	

7. Details of land resources

S. No	Particulars	
1	Topography of land	
2	Low land area	
3	Upland area	
4	Soil types	
5	a.	
6	b.	
7	Quality of land	
8	Degradation of land	
9	Land leased system (contract / half -half)	
10	a. Leased-in	
11	b. Leased-out	
12	Land rent	
13	Land revenue	

8. Source wise irrigated area

S.No	Particulars	No.	Area (hectares)
1	Canal		
2	Tanks		
3	Wells		
4	Tube wells		
5	River		

6	Nala		
7	Dabri / munda		
8	Check dam		
9	Reservoir		
10	Net irrigated area		
11	Gross irrigated area		

9. Livestock and Poultry

S. No.	Particulars	Number
1	Total livestock	
2	Total cattles	
	a. Cows	
	b. Bufflaoes	
3	Total other livestock	
	a. Poultry	
	b. Goats	
	c. Pigs	
	d. Others	

10. Category wise number of farmers

S. No	Particulars	Number of farmers				Total
		Marginal	Small	Medium	Large	
1.	Scheduled tribe					
2.	Scheduled case					
3.	Other backward case					
4.	General					
5.	Total					

11. Rainfall distribution

S. No	Months	Rainfall (in mm)
1.	January	
2.	February	
3.	March	
4.	April	
5.	May	
6.	June	
7.	July	
8.	August	
9.	September	
10.	October	
11.	November	
12.	December	
	Total	

Self Help Groups

S. No.	Activity	Members (No.)

Farmers Production Organization (FPOs)

S. No.	Activity	Members (No.)

Details of other organizations in selected village:-

Exp.:- Present Scenario of Agribusiness college industry, small scale industry in village.
Status of Non-Timber forest products.

Food Consumption Pattern (Per Family/day)

S. No.	Cereals	KG/Week	KG/per day
1	Rice		
2	Wheat		
3	Minor millets		
4	Pulses 1. Arhar 2. Kulthi 3. Others		
5	Oil/Green		
6	Spices		
7	Fruits		
8	Vegetable		
9	Fish		
10	Meat		
11	Egg		
12	Chicken		
13	Mushroom		
14	Milk & Milk Produce		

Income from Different Sources (Per Family/Year)

S. No.	Cereals	No. of Days employed	Rupees
1	Crops		
2	Horticulture		
3	Fisheries		
4	Poultry		
5	Live Stock		
6	Forest Produce		
7	Non Farm Income (Business, Services, Labour work – non- Agricultural Income)		
8	Off Farm Income (Agriculture Labouress, NERGA etc.)		
9	Others Income		
10	Total Income.		

Collection of NTFPS Per Household/Year

S. No.	Name of NTFPS	Quantity Collected (KG)	Value	Primary Processing	Employment Days
1	Tendu leaves				
2	Harra				
3	Baherra				
4	Aonla				
5	Tamarind				
6	Chirounji				
7	Gum				
8	Others				

Allied Sectors Per Household/Year

S. No.	Particular	Quantity (KG)	Value	Primary Processing
A	Fish seed Fish Bio-Flock Fish feed			
B	Bee-Keeping 1. Many Production 2. Wax 3. Many box			
C	Goat			

	<ol style="list-style-type: none"> 1. Goat Sale 2. Mutton 3. Milk 			
D	Duck/Titar/Bater <ol style="list-style-type: none"> 1. No of sale 2. Meat 3. Egg. 4. Chicken 5. Birds (Chuja) 			

Detailed Information of Organization and Institutions Work in Study Area (Not Necessary from Selected Village)

S. No.	Name of Organization/Institutions	Date of Establishment	No. of Member	Amount of Working Capital	Economic and Social Activity (Products, Services etc.)	Income (Rs.)	Constants in Production, Marketing and Processing
1	FPOs	Any one from each of your sampled Block					
2	SHGs						
3	NGOs						
4	PGs						

Block:

- **Chhattisgarh Plains** : - BalodaBazar and Mungeli.
- **Northern Hills** : - Pathalgaon, Lundra and Sonhat.
- **Bastar Plateau** : - Dantewada, Bakawand, Charama.

ANNEXURE- 2

List of Selected Blocks for CHIRAAG

CHIRAAG Region	CHIRAAG Districts	CHIRAAG Block
Surguja	Koriya	Bharatpur
		Sonhat
	Balrampur	Samri(Kusmi)
		Shankargarh
	Surajpur	Partapur
		Odgi
	Surguja	Lundra
		Mainpat
	Jashpur	Manora
		Pathalgaon
Bilaspur	Mungeli	Mungeli
Raipur	BalodaBazar	Bilairgarh
Bastar Region	Kanker	Charama
		Narharpur
	Kondagaon	Baderajpur
		Makdi
	Bastar	Bakawand
		Bastar
	Narayanpur	Narayanpur
	Dantewada	Dantewada
		Kateklyan
	Sukma	Chhindgarh
Sukma		
Bijapur	Bhopalpattnam	
	Bhairamgarh	

ANNEXURE – 3

General Profile of Agriculture farmers

S. No.	Particular	Northern Hill	Chhattisgarh Plains	Bastar Plateau
1	Land Holding			
	Marginal (0<1 ha)	9 (30)	14 (70)	9 (30)
	Small (1 – 2 ha)	11 (37)	04 (20)	12 (40)
	Medium (2 – 4 Ha)	4 (13)	1 (5)	7 (23)
	Large (0>4 Ha)	6 (20)	1 (5)	2 (7)
	Total :-	30 (100)	20 (100)	30 (100)
2	Caste			
	SC	(02)	(15)	(02)
	ST	(80)	(18)	(78)
	OBC	(18)	(65)	(15)
	General	-	(02)	(08)
	Total :-	30 (100)	20 (100)	30 (100)
3	Crop	Yield (q/ha)	Yield (q/ha)	Yield (q/ha)
	Major Crops Grown in Kharif			
		Paddy (40)*	Paddy (34)*	Paddy (32)*
		Pigeon Pea (15)*	Black Gram (12)*	Maize (25)*
		Black Gram (12)*		Black Gram (12)*
				Niger (2.25)*
	Major Rabi Crops			
		Wheat (30)*	Wheat (25)	Maize (08)
		Mustard (08)	Lathyrus (08)	Wheat (14)
		Chick Pea (18)	Mustard (12)	Black Gram (12.50)
	4	Major Source of Irrigation		
		Tube well	Canal	Tube well
		Canal	Tanks	River
		Dabri/Munda	Tube wells	Dabri/Munda
		Tanks		Check Dam
5	Major Soil Type			
		Sandy loam	Matasi (Sandy Loam)	Matasi (Sandy Loam)
		Red Lateritic	Bhata (lateritic)	Bhata (lateritic)
			Kanhar (Clay)	Dorsa (Clay loam)
				Kanhar (Clay)

Note: Figures in parentheses indicate percentage to total.

* Productivity per hectare.

ANNEXURE – 4

Profile of Stakeholders: Live Stock (Number)

S. No.	Particular	Northern Hill	Chhattisgarh Plains	Bastar Plateau
	A. Live Stock (no. of HHs)			
1	Landless agricultural labourers (LLAL)	2 (33)	2 (50)	3 (50)
2	Marginal & Small farmers <ul style="list-style-type: none"> • No of cows (NGOs) • No of buffaloes 	4 (67)	2 (50)	3 (50)
	B. Goatery (Number of HHs)			
1	LLAL	3	1	2
2	MG & S.	3	3	4
	No. Of Goat	52	40	58
	C. Poultry (Number of HHs)			
1	LLAL	2	2	1
2	MG & S.	4	2	5
	No. Of Birds	65	60	68
	D. Piggery (Number of HHs)			
1.	LLAL	4	3	5
2.	MG & S	2	1	1
	No. Of Pigs	36	40	45
	E. Others (Sheep, Ducks, Quails etc.)	52	32	62

ANNEXURE – 5

Profile of fishery stakeholders

S. No.	Particular	Northern Hill	Chhattisgarh Plains	Bastar Plateau
1	No. Of Fisherman	06	04	06
	No. Of Ponds			
	• Individual	2 (33)	2 (50)	1 (17)
	• Community	4 (67)	2 (50)	5 (83)
	Total	6 (19)	4 (19)	6 (19)
2	Productivity (Kg/ha.)			
	• Individual	34.22	42.50	28.25
	• Community	24.83	27.84	21.50

Note: Figures in parentheses indicate percentage to total.

ANNEXURE – 6

Quantity and value of NTFPs collected by selected dwellers.

No.	Particulars	NH (No. of Collector)		CP (No. of Collector)		BP (No. of Collector)	
		Qty. (kg.)	Value (Rs.)	Qty. (kg.)	Value (Rs.)	Qty. (kg.)	Value (Rs.)
1	Indu Leaves (in bundles)	2000	8640	-	-	2500	10800
2	Arra	-	-	-	-	10	350
3	Chera	40	680	-	-	9	162
4	Chhala	5	200	15	675	10	400
5	Chharind	7	140	50	1250	12	240
6	Chhironji	2.5	1000	0	0	2.8	1120
7	Chham	0	0	0	0	1.6	50
8	Chhas seed	0	0	0	0	10	80
9	Chhua seed	5	60	10	70	25	250
10	Chhua flower	25	450	5	90	35	630
11	Chhshroom (wild & edible)	3	198	0	0	5	350
12	Chhmegh	0	0	0	0	0.2	138
13	Chhney	3	780	0	0	5	1300
Total		2090.5	12148	80	2085	2625.6	15870

ANNEXURE – 7

Average food consumption pattern of Bastar tribal's (Per day)

S. No.	Food Items	Recommended Quantity (Rs.) *	Tribal of Bastar		
			Winter	Summer	Rainy
1	Cereals (gm.)	520	425.80	450.41	438.90
2	Pulses (gm.)	25	19.00	4.41	15.90
3	Leaf Vegetables (gm.)	40	8.20	41.01	20.00
4	Other Vegetables (gm.)	70	20.10	12.90	30.70
5	Tubers (gm.)	60	8.91	6.08	3.04
6	Milk (ml.)	30	20.40	9.80	0.90
7	Oil and Fat (gm.)	30	-	-	-
8	Sugar and Jiggery (gm.)	200	0.70	0.50	0.20
9	Fruits (gm.)	50	0.32	0.32	1.85
10	Fish and Egg (gm.)	35	0.89	0.85	0.15

Source: Tribal Welfare department, Bastar* ICMR (Indian Council at Medical Research)

ANNEXURE – 8

Basic information of FPOs' in Chhattisgarh which are promoted by NABARD

Particulars	Chhattisgarh Plains	Northern Hills	Bastar Plateau
1. Number of FPOs	37	14	06
2. Number of functional FPOs	24	10	6
3. Selected FPOs (no.)	12	5	3
4. Total members	15632	6089	1571
5. Category of Registration			
a. Cooperative	26(70.27)	14(100)	06(100)

b. Company ltd.	11(29.72)	-	-
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ANNEXURE – 9

Activities performed by FPOs

Particulars	Chhattisgarh Plains	Northern Hills	Bastar Plateau
3. Activities			
a. Fruits and vegetables Production Sales and Marketing	22 (59.45)	08 (57.14)	03 (50)
b. Dairy	01 (2.70)	01 (7.14)	03 (50)
c. Value addition			
i. NTFP	11 (29.72)	05 (35.71)	-
ii. Mushroom and Vermi-Compost	03 (8.10)	-	-
Total	37	14	06

ANNEXURE – 10

Region-wise basic profile of FPOs

Producer Co.>Parameters	Northern Hills	Chhattisgarh Plains	Bastar Plateau
Authorized capital (Rs. Lakh)	6.25	9.08	8.12
Share capital (Rs. Lakh)	4.05	7.71	3.03
Shareholding Pattern			
- Initial	26	42	39
- Present	550	939	180
Shares per member	4	10	10
FBG/SHG/Coop. Associated	12	5	3
No. of directors	10	12	10
No. of Prof. Managers	3	1	2
Total no. of employees	3	2	8
Total no. of non-member	115	98	0
% of total business from non-members	20	10	0
Avg. Size of holding of member in Ha.	2.0	1.0	1.5
Main business	Rice, Wheat, maize, small millets, fruits and vegetable production, procurement and marketing.	Krishi Kendra, vegetable, mushroom and vermicomposting and marketing	Dairy farming and dairy products, marketing and selling of vegetables.

ANNEXURE – 11

Business Performance and Profile of FPOs

Parameters	Northern Hills	Chhattisgarh Plains	Bastar Plateau
Year (2015-16) Turnover (Rs. Lakhs)	20	62	08
Profit in Rs.	8870	856342	12840
Year (2016-17) Turnover (Rs. Lakhs)	43.27	55	15
Profit in Rs.	253382	765382	53862
Profit Per Member (Rs.)	4607	8151	2992
Profit Per Share (Rs.)	1151.75	815.10	299.20

ANNEXURE – 12

Farmer awareness and perception of the FPOs

Producer Company Parameters	Northern Hills	Chhattisgarh Plains	Bastar Plateau
-Total no. of farmer	550	939	180
-Aware of company business (%)	75	80	95
-Rate it satisfactory (%)	70	65	85
-Avg. farmer sale of seed (%)	20	10	5
-Input purchase by FPOs (% of total used)			
- Seed	57.5	20	50.5
- Fertilizer/feed	23.75	10	55
- Pesticides	18.75	8	10
-Satisfaction with various (%)			
- Input	72.5	80	60
- Output	63.5	75	62.5
- Mgmt. of PC	65	70	63.75

ANNEXURE – 13

Social Empowerment through FPO

Variables	Weighted Average	Rank
Participation in social Activities	14.8	
Participation in village administration	15.6	
Knowledge on improved technologies	9.7	
Recognition in Society	16.8	III
Awareness of socio economic development programmes	11.87	
Involvement in addressing social issues and problems	15.13	
Assurance of children's higher studies	10.67	
Sense of leadership	15.93	
Confidence in decision making	17.47	II
Improvement of communication skills	12.87	
Organizational skills	12.87	
Sense of motivation in doing social work	16.33	
Sense of social responsibility	13.73	
Problem solving	18	I

ANNEXURE – 14

(Chapter 4 Environmental and Social Baseline)

Environment Baseline

4.1.1 Geography:

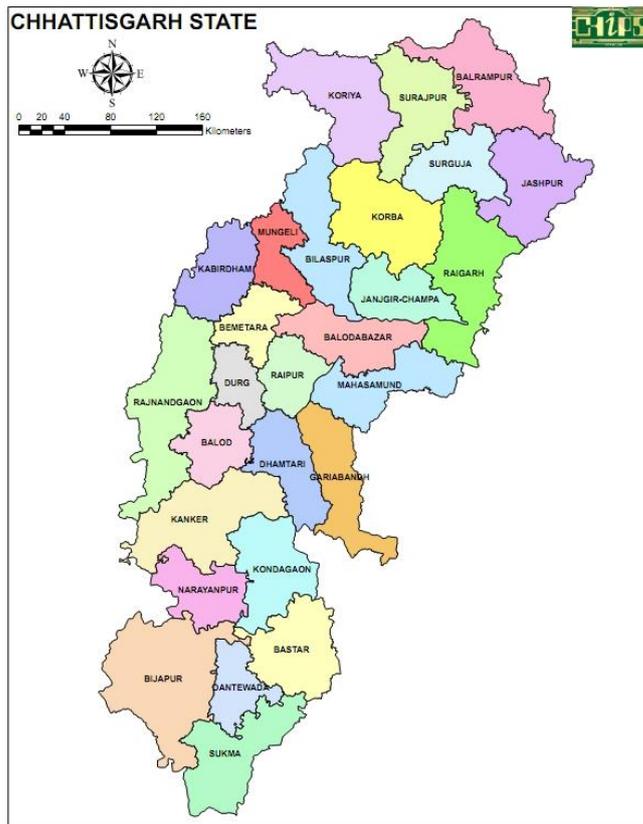
The state is divided into three agro-climatic zones viz, Chhattisgarh plains, Bastar plateau and Northern hills covering 51.0%, 28.0% and 21.0% of geographical area, respectively. The location of the state is such that it is close to the Bay of Bengal, which is instrumental in bringing monsoon in the northern part of the country. The state is endowed with abundant rainfall (1400-1600 mm), optimum solar radiation, favourable temperature, relatively well-conserved soils and surplus power and manpower. In spite of this, the state lags behind from rest of the states in crop productivity and has high poverty, population and small fragmented holdings. The state is spread over 13.79 m ha of which only 4.67 m ha is cultivable. Because of limited availability of irrigation during rabi season, only 35 per cent area is under cultivation of which, major portion is under utera (relay) cropping of lathyrus, linseed and chickpea having very low productivity.

Northern region: The districts that are part of this region (Korea, Surguja, Jashpur, Raigarh, and Korba) have similar geographical, climatic, and cultural contexts and harbour dense forests, hills and water reservoirs. It is home to several indigenous tribal communities such as Paharikorba and Pando, etc. Governed largely by tribal customs, culture and traditions, in the rural areas of the region, people are dependent largely on agriculture and non-timber forest produce (NTFP). The level of migration from this region is comparatively limited. The urban centres are limited to Korba and Ambikapur. Korba is the largest town, with limited industry concentration. There are coalmines in Surguja and Korea districts.

Central plains region: Raipur, Bilaspur, Janjgir-Champa, Kabirdham, Rajnandgaon, Durg, Dhamtari, and Mahasamund are the districts that fall in the central plains. Mahanadi is the primary source of water for irrigation and domestic use. Owing to the presence of large number of indigenous varieties of rice, the central plains of Chhattisgarh are known as the 'rice bowl' of Central India. Bilai and Durg are well known urban areas, both with large steel plants. Rural craft is well developed in the region and well known (e.g. the silk weavers of Janjgir-Champa). The region is densely populated with Raipur and Durg accounting for almost half the total urban population of Chhattisgarh.

Southern region: The districts in this region (Kanker, Bastar and Dantewada) are known for its varied and rich forests, diverse tribal population, and unique culture. These districts are bordered by the States of Maharashtra, Andhra Pradesh, and Odisha. The people of the region are dependent on traditional agriculture and forests for their livelihood. The Bailadila mines in Dantewada district represent the limited industry in the region.

Map- 2 Map of Chhattisgarh



Map- 3 Map of Agro climatic zones of Chhattisgarh



4.1.2. Water resources: Precipitation, Groundwater and Drainage

Estimated surface water flowing through rivers is 48,296 Million Cubic meter and due to various geographical and interstate constraints, the usable surface water in the state is 41,720 Million Cubic meter. Surface water is used at present is only about 18,249 Million Cubic meter. Estimated ground-water in the state is 14,548 Million Cubic meters and present exploration is

about 20%.¹⁶⁸The groundwater development in our State is restricted to the shallow aquifer zone, within 50 m depth and mostly through both in public and private sector. The shallow groundwater structures include dug wells and bore wells in hard rock areas and dug wells, shallow tube wells and filter point tube wells in alluvial terrain. The medium tube wells are also constructed in alluvial areas down to an average depth 40-50m.¹⁶⁹ Out of the new groundwater availability in the state, 20% of the available groundwater is currently being utilized. Agriculture accounts for the lion's share of about 83% in the total groundwater extraction, while the remaining 17% is extracted by the domestic and industrial sectors.¹⁷⁰Since the present level of groundwater exploration in the state is 20% there is further scope for future expansion. A comprehensive master plan for the state, for optimum use of water resources is under preparation. The state is moving ahead towards a more integrated and sustainable approach to water resources management.

Table 13: Available Water Resources in India and Chhattisgarh State

Water Availability	India	Chhattisgarh	%
Surface Water	1,869 BCM	48.2 BCM	3.20
Ground Water	435 BCM	14.5 BCM	3.17
Net Annual Ground-Water Availability	393 BCM	13.68 BCM	3.5
Annual Ground Water Draft	249 BCM	2.8 BCM	1.1
Stage of Ground Water Development	63%	20%	-

Source: Central Ground Water Board", Chhattisgarh, Ministry of Water Resources Government of India, Chhattisgarh Water Resource Department

The major Rivers flowing in Chhattisgarh State are given in Table 36. The Mahanadi River and its tributaries Seonath, Hasdeo, Mand and Arpa drain part of Raipur, Durg, Rajnandgaon, Bilaspur, Raigarh and Surguja districts. The Indravati River is a tributary to Godavari River and drains the districts of Kanker, Bastar and Dantewada. Most of the Rivers are perennial in nature. The Drainage patterns in the state are dendritic, parallel, angular and radial types. Son is the tributary of Ganga River and drains parts of Sarguja and Koriya districts. Details on major river systems are given below.

Major River Basins in Chhattisgarh State

S. No.	Major Rivers	Tributaries	Districts
1.	Arpa 107 Sq.Km.		Surguja, Koriya, Jashpur and Bilaspur
2.	Mahanadi 358 Sq.Km.	Hasdeo, Seonath, Mand	Raipur, Mahasamund, Dhamtari and parts of Durg, Rajnandgaon, Kawardha, Korba, Kanker, Bastar, Surguja, Raigarh and Bilaspur.
3.	Godavari 594 Sq.Km.	Indravati, Sabari in Ganga	Districts of Durg, Bastar, Rajnandgaon, Kanker and Dantewada
4.	Hasdeo 14 sq.Km.	Hasdeo	Districts of Rajnandgaon, Bilaspur, and Kawardha
5.	Seonath 94 sq.Km.	Seonath	District of Jashpur

The region is endowed with sub-tropical monsoon climate with three distinct seasons i.e. summer, monsoon, and winter. The southwest monsoon starts from June and continues till middle of September. Winter season spreads from October to February. Summer season extends from March to middle of June. Rainfall is the major source of ground water recharge in the area

and receives maximum (85%) rainfall during the southwest monsoon season. The winter rainfall is meager (10 - 15%). The Indian Meteorological Department (IMD), various State Government departments; Agricultural Universities etc. are maintaining number of rain gauge stations which comes to more than 200 in the State. Details rainfall data in Annexure XV.

4.1.3 Irrigation:

The state has recognized irrigation as the prime need for the overall development and therefore has given top priority to the development of irrigation potential. It is estimated that about 75% of the gross sown area of the state can be irrigated with the proper use and management of available water resources. However, the total irrigated area under all crops for Chhattisgarh is 31.2%, which is lower than the national average of 48% , further area under irrigation for pulses is only 15% . The net sown area of the state is 4.683 Million hectares and the gross sown area is 5.561 Million hectares. The total area covered under micro-irrigation is 21.98 Hectares for drip, 2.75 lakh Hectares for sprinkler, 2.97 lakh hectares of total micro-irrigation, which is less than the national average of 3.41 lakh hectares per state.

About 73% of the Chhattisgarh Plains, 97% of the Bastar Plateau, 95% of the northern hills are rainfed. Moreover, the irrigated area available for double cropping is only 87,000 ha in the plains and 2300 ha in Bastar and northern region. The state government has launched various schemes to increase irrigation facilities and thereby tried to increase the area under double crop. *Source wise irrigation area of selected blocks:* Total irrigated area under the selected blocks was found to be 143414.28 ha. The major sources of irrigation were tube well followed by canal, river/perennial/streams and tanks (table – 14). The State has 31.2% 36 per cent irrigated area whereas it is only 17.97 percent in sampled blocks. The project intends to increase the number of households's access to assured supply of water. Table – 14: Source Wise Irrigated Area of Selected Blocks

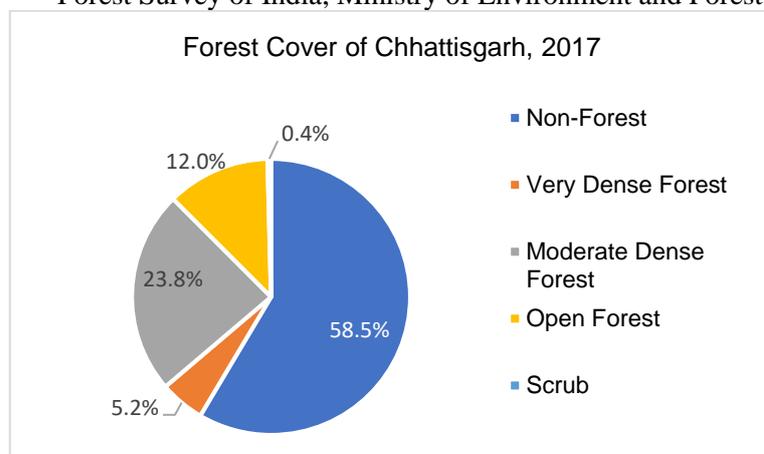
District	Block	Sources of Irrigation (Ha)					
		Canal	Tube well	Tanks	Farm Pond	Irrigation Wells	River/perennial streams
Bastar	Bastar	2142.00	2390.00	121.00	0.00	330.00	3044.00
	Bakawand	0.00	2772.00	0.00	171.20	892.00	3104.10
Bijapur	Bhairamgarh	44.00	270.00	1074.00	378.00	35.00	60.00
	Bhopalpatnam	0.00	227.00	2403.00	0.00	15.00	0.00
Kondagaon	Makdi	0.00	3640.00	0.00	0.00	46.00	0.00
	Baderajpur	0.00	2050.00	519.00	56.00	87.00	1100.00
Dantewada	Katekalyan	0.00	180.00	0.00	0.00	9.23	12.25
	Dantewada	10.00	380.50	80.00	10.00	3.00	27.00
Kanker	Charama	106.00	5655.00	1814.00	46.00	42.00	1065.00
	Narharpur	765.00	8130.00	2408.00	61.00	927.00	415.00
Sukma	Sukma	0.00	448.00	137.00	30.00	20.00	120.00
	Chhindgarh	0.00	480.00	167.00	10.00	22.00	170.00
Narayanpur	Narayanpur	350.00	718.00	125.00	95.00	425.00	5312.00
Bastar Plateau) :-		3417.00	27340.50	8848.00	857.20	2853.23	14429.35
Balrampur	Shankargarh	617.00	360.00	500.00	551.00	24.00	904.00
	Kusmi	821.00	367.00	636.00	600.00	180.00	821.00
Korea	Sonhat	2402.00	403.00	177.00	64.00	714.00	642.00
	Bharatpur	965.00	795.00	190.00	1908.00	585.00	2380.00
Surguja	Mainpath	636.00	140.00	100.00	258.00	97.00	280.00
	Lundra	250.00	4185.00	250.00	175.00	150.00	5364.00
Surajpur	Odgi	52.00	25.00	80.00	0.00	299.00	800.00
	Pratappur	571.00	2982.00	161.00	188.00	200.00	1213.00
Jashpur	Manora	271.00	75.00	1182.00	0.00	1257.00	629.00
	Pathalgaon	1053.00	320.00	7279.00	0.00	1200.00	677.00
Northern Hills) :-		7638.00	9652.00	10555.00	3744.00	4706.00	13710.00

Mungeli	Mungeli	19277.00	9406.00	0.00	220.00	104.00	230.00
Balodabazar	Bilaigarh	3100.00	600.00	0.00	360.00	105.00	2262.00
Chhattisgarh Plains) :-		22377.00	10006.00	0.00	580.00	209.00	2492.00
		33432.00	46998.50	19403.00	5181.20	7768.23	30631.35

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

4.1.4. Forest cover

Chhattisgarh occupies the third position in India with respect to the forest area. Forest Area of the State approx. 59772 sq km, which is 44.21% of the State 's geographical area. Based on the interpretation of the satellite data pertaining to October – December 2015, the forest cover in the state is 55,547 sq km, which is 41.09% of the state's geographical area. In terms of forest canopy density classes, the state has 7,064 sq. km under very dense forest, 32,215 sq km under moderately dense forest and 16,268 sq. km under open forest. The following chart represents the forest cover of Chhattisgarh as per the State of Forest Report 2017, by the Forest Survey of India, Ministry of Environment and Forest.



The Reserved, Protected and Unclassed forests are 43.14%, 40.21%, and 16.65% respectively of the recorded forest area. Some of the districts with a forest cover of more than 40% include; Bijapur (76.28%), Bastar Dantewada (53.7%), Dhamtari (45.47%), Korba (51.3%), Koriya (61.98%), Narayanpur (81.7%), Surjuga (44.95%), Uttar Bastar Kanker (47.38%).

The forests of Chhattisgarh are very rich in these Minor Forest Produce (MFP). MFP includes the products from various forest species in the form of fruits, seeds, leaves, barks, roots, flowers, and grasses, etc., including an entire plant of medicinal herbs/shrubs. There are many MFP species of commercial importance in the state. Tendu leaves and Gums, Babool and Khair are the nationalized MFP in the state. Other minor forests produce collected from the forest in the state are sal seed, Harra, Tamarind, Chironjee Guthli, Lac, and Mahua seed.

To promote the trade and development of these minor forest produces (MFPs) in the interest of MFP collectors, mostly tribals, Chhattisgarh State Minor Forest Produce (Trading and Development Co-operative Federation) (CGMFP) was established in 2000. CGMFP was established as an apex organization with a three-tier co-operative structure after the division of the erstwhile Madhya Pradesh state. The main function of the CGMFP includes the following:

- Collection trading of Nationalized as well as non-nationalized MFP
- Implementation of various Socio-economic Welfare Schemes for the tendu leaves gatherer families like free footwear distribution, insurance schemes for the members of Tendu leave gatherers, profit distribution from the trade of Tendu leaves in the form of differed wages, etc.,
- Ensure proper price realization for MFP through MSP scheme
- Promotion of MSP-based processing units
- Conservation, development and sustainable utilization of Minor Forest Produce
- Promotions of cultivation of Minor Forest Produce Species including medicinal, aromatic and dye plants.

To ensure that MFP gatherers should get proper prices for their produce, Govt. of India introduced "Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and Development of Value Chain for MFP" scheme in 2013-14. Under this scheme, the MSP for important MFPs has been fixed. In Chhattisgarh Sal Seed, Harra, Tamarind, Chironjee Guthli, Lac Kusumi, Lac Ragini and Mahua Seed are purchased under this scheme.

Quantity and value of NTFPs collected by selected dwellers.

No.	Particulars	NH (No. of Collector)		CP (No. of Collector)		BP (No. of Collector)	
		Qty. (kg.)	Value (Rs.)	Qty. (kg.)	Value (Rs.)	Qty. (kg.)	Value (Rs.)
1	Indu Leaves (in bundles)	2000	8640	-	-	2500	10800
2	Harra	-	-	-	-	10	350
3	Tamarind	40	680	-	-	9	162
4	Sal	5	200	15	675	10	400
5	Tamarind	7	140	50	1250	12	240
6	Chironjee	2.5	1000	0	0	2.8	1120
7	Lac	0	0	0	0	1.6	50
8	Sal seed	0	0	0	0	10	80
9	Mahua seed	5	60	10	70	25	250
10	Mahua flower	25	450	5	90	35	630
11	Wild mushroom (wild & edible)	3	198	0	0	5	350
12	Lac	0	0	0	0	0.2	138
13	Sal seed	3	780	0	0	5	1300
Total		2090.5	12148	80	2085	2625.6	15870

4.1.5 Biodiversity

Chhattisgarh still has abundant forests and wildlife and urgently needs scientific attention and study for the better management of its natural resources and heritage. Chhattisgarh State, lying in the Vindhyan hill regions and Deccan plateau in central India, has over 44% of its land area under forests and is rich in biodiversity. 7.8 Million Indigenous and tribal communities take out their livelihood from these forests and biological resources. These forests are also the origin of major rivers – Mahanadi, Indravati and Narmada. Chhattisgarh has three national parks, eleven wildlife sanctuaries and three tiger reserves, and has endangered fauna like wild Buffalo (*Babulus babulisarnee*), the state animal of Chhattisgarh. The State's forests and Biodiversity face a number of threats from agriculture, industrial and urban expansion, unsustainable collection of fuel wood, harvesting of medicinal plants and Non-timber forest products (NTFPs), diversion of forest lands for non-forestry purposes and grazing. The importance of ecological research cannot be underestimated in a State like Chhattisgarh where sustainable management of biodiversity becomes important for the livelihood of local people and the State's rural economy.

However, there is little evidence of good ecological research in the state, and not many scientific publications on the state's flora and fauna, biodiversity status and conservation challenges are available. The Zoological Survey of India has only recently completed a detailed biodiversity survey in the national parks and sanctuaries in the State. There is limited information available on the density of tigers and abundance of prey animals in the three tiger reserves. The paucity of research makes decision making and management of forests very hard. In the absence of authentic evidence to show the presence of rare and endangered species of conservation importance, decision making on diversion of forest lands for non-forestry purpose often goes in favour of project proponents and the development of wildlife management plans becomes difficult. Human-elephant conflict in north Chhattisgarh is rising where it is unable to derive conflict mitigation strategies, due to lack of information on

elephant movement, habitat use and corridors. However, CHIRAAG does not entail any diversion or conversion of forests for non-forestry purpose.

4.1.6. Land utilization

Gross cropped area in Chhattisgarh increased about 9.92% from 5174834 ha. to about 5688582 ha. between TE 2001-02 and TE 2015-16. Double cropped area had increased from 683883.3 to 1016103 which is about 48.57%. In Chhattisgarh net cultivated area has fallen marginally. Forest area has increased tremendously from 4110607 to 6320334 which is about 53.75 % (Table-16). Cropping intensity increased has by about 11.93 percent.

Table -16 Land utilization pattern in Chhattisgarh state (ha.)

S. No.	Distribution	TE 2001-02	TE2015-16	% Change
1	Total Geographical Area	13750789	13789836	0.28
2	Forest Area	4110607	6320334	53.75
3	Land not available for cultivation	2840344	1027848	-63.81
4	Culturable fallow and Un-culturable land	854242	1241179	45.30
5	Fallow Land	854241.7	527995	3.63
6	Total Non Agricultural land (land not available for cultivation) + Fallow Land	1189582	1769174	48.72
7	Net Cultivated Area	4757199	4672499	-1.78
8	Double Cropped Area	683883.3	1016103	48.57
9	Gross Cropped area	5174834	5688582	9.92
10	Cropping Intensity (%)	108.77	121.75	11.93

Source: Economic Survey 2016-17, Directorate of Economics & Statistics, Government of Chhattisgarh, Raipur.

Land use classification of selected blocks: About 41% area is used for agriculture purpose to the total geographical area of selected blocks which is higher than state average (33.88%). Permanent pasture and permanent fallow amounts 13% to the total geographical area of selected blocks is given below.

Land Use Classification of Selected Blocks (2017-18)

S. No.	Districts	Block	Average land holding size (Ha.)	Land Use Details (Ha.)				
				Total Geo. Area	Total Agriculture Area	Permanent Pastures	Permanent Fallows	Total
1	Bastar	Bastar	1.71	89926.00	37241.00	4786.00	3646.00	5599.00
2		Bakawand	1.46	70014.41	33276.00	2096.76	3211.01	8598.18
3	Bijapur	Bairamgarh	2.70	163935.00	22818.00	4255.00	2610.00	3618.00
4		Chopalpatnam	1.75	102886.00	9200.00	2251.00	1594.00	5931.00
5	Dandagaon	Makdi	3.20	56857.00	32330.00	2355.00	-	1542.00
6		Baderjpur	2.07	45428.16	29540.00	1846.49	1185.91	8000.55
7	Dantewada	Katekalyan	5.25	46802.42	19930.19	830.49	486.93	8050.03
8		Dantewada	6.07	58428.00	34700.00	855.00	2771.00	6754.00
9	Kanker	Charama	1.38	48220.00	30975.00	2690.00	5051.00	6936.00
10		Narharpur	1.42	73545.00	38176.00	7821.00	2710.00	2252.00
11	Sukma	Sukma	3.40	96488.00	32055.00	3726.00	6106.00	8375.00
12		Chhindgarh	3.35	101858.00	42945.00	4994.00	5677.00	55474.00
13	Narayanpur	Narayanpur	5.10	193765.00	44567.00	2140.00	1345.00	11817.00
Total (Bastar Plateau) :-			2.99	148152.98	407753.19	40646.74	36393.85	32946.76
14	Balrampur	Shankargarh	1.09	60647.00	20410.00	15297.00	21496.00	7850.00
15		Kusmi	0.92	103175.00	33304.00	25065.00	39390.00	10934.00
16	Korea	Sonhat	1.36	23267.00	14630.00	2920.00	4158.55	4975.55
17		Bharatpur	0.00	100676.00	47362.00	2735.00	3770.00	54543.00
18	Surguja	Mainpath	1.42	45466.00	14370.00	7950.00	432.00	8218.00
19		Lundra	1.38	57950.00	33698.00	2610.00	2800.00	7058.00
20	Surajpur	Odgi	1.45	47104.00	21635.00	11218.00	803.00	10760.00
21		Pratappur	1.40	60417.00	37094.00	348.00	1720.00	9579.00
22	Jashpur	Manora	2.50	89049.00	25391.00	2869.00	5022.00	12331.00
23		Pthalgaon	1.76	79200.00	49800.00	4660.00	3765.00	7425.00
Total (Northern Hills) :-			1.33	566951.00	297694.00	75672.00	83356.55	23673.55
24	Mungeli	Mungeli	1.50	61332.00	49840.00	6325.00	922.00	8419.00
25	Modabazar	Bilaigarh	1.20	65617.00	42747.65	5484.00	2700.00	16548.65
Total (Chhattisgarh Plains) :-			1.35	126949.00	92587.65	11809.00	3622.00	34967.65
Total :-			2.19	942052.98	798034.84	128127.74	123372.40	91587.96

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

4.1.7 Agriculture

Eighty percent of Chhattisgarh's population is dependent on agriculture for its livelihood. Of the 37.47 lacs farmer households in the state 80.44 percent fall under the small and marginal category. Currently approximately 32 percent of the area is irrigated from various sources – of this, the largest extent of irrigated land – 66 percent is fed by irrigation reservoirs/canals. Approximately 55 percent of the state's cultivable land has low capacity for water retention and hence it is not feasible to take a second crop without irrigation facilities. Agriculture in Chhattisgarh is characterized by low incomes, low productivity, and high dependence on rains, large number of small-marginal farmers, low investments, and mono cropping. Only a third of the State's geographical area is sown and just seven percent is under double crop.

Operational holding of selected blocks: Average size of holding was observed at 2.19 ha which is higher than state average (1.36 ha). In the selected blocks, about 66% farmers come under marginal and small category whereas in the state this percentage is 68 (Annexure - XVII).

Cropping Pattern: Kharif

As indicated in the table 46 the main crops are paddy, wheat, maize, groundnut, pulses, and oilseeds. Chhattisgarh is also called the "rice bowl of India." Chhattisgarh is home to more than 23,000 native varieties of rice. Nearly 3.7 million hectares, which is 77.56 percent of net sown area and 85.87 percent of total production, is under paddy cultivation. Area has under cereals decreased however the area under pulses and oilseeds has increased significantly. In cereal crops the area under minor millets has decreased significantly from 449.19 ha. in TE 2002-03 To 85.15 ha. in 2015-16. Area under vegetables has increased 110.64 percent over the years. Productivity of all most all the kharif crops has increased except ram til (Table 17).

Table: – 17 Area under kharif crops (Area in 000 ha.)

S. No.	Name of Crops	TE 2001-02 Average	TE 2015-16 Average	% change
1	Paddy	3753.89	3717.72	-0.96
2	Maize	95.45	218.38	128.79
3	Minor Millet	449.19	85.15	-81.04
Total Cereals		4130.28	4021.26	-2.64
4	Pigeon pea	52.78	127.12	140.85
5	Green Gram	9.69	24.9	156.97
6	Black Gram	115.16	155.27	34.83
7	Kulthi	55.26	38.53	-30.28
Total pulses		269.73	345.82	28.21
8	Ground Nut	34.85	52.47	50.56
9	Till	24.48	35.67	45.71
10	Soybean	73.64	138.51	88.09
11	Ram till	16.87	66.88	296.44
12	Sunflower	0.24	0.29	20.83
Total oilseeds		150.1	293.82	95.75
13	Vegetables and others	62.68	132.03	110.64
Total		4612.81	4792.94	3.90

Source: Directorate of Agriculture, Chhattisgarh Government, Raipur, 2016-17.

Area under Kharif Crops in selected blocks: Paddy maize, black gram, pigeon pea, ground nut, soy bean & minor millets are the major crops in selected blocks as per area under cultivation in Kharif stream. In Bastar plateau paddy maize, black gram pigeon pea and minor millets are the major crops. In Northern hills, paddy maize, black gram, pigeon pea and ground nut are the major crops grown by the farmers. Paddy soy bean, pigeon pea and black gram are the major crops in Chhattisgarh plains (table – 18). The State has 135 per cent cropping intensity however; the sampled blocks have far below the cropping intensity, which is 109 per cent.

Table - 18: Area under Kharif crops in selected blocks (ha.) (2017-18)

Area under Kharif Crops in Selected Blocks (Ha.)																
District	Block	Paddy	Maize	Black Gram	Ragi	Green Gram	Pigeon Pea	Niger	Minor Millets	Pulses	Oil Seeds	Kulthi	Tau	Ground Nut	Soybean	Sugarcane
2	3	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20
Bastar	Bastar	28200	4920	1385	290	0	0	0	150	0	0	0	0	0	0	0
	Bakawand	23039	7235	935	479	0	0	0	589	0	0	0	0	0	0	0
Bijapur	Bairamgarh	19736	209	272	0	123	0	0	270	0	0	0	0	0	0	0
	Bhopalpatnam	8550	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kondagaon	Makdi	18500	6000	3000	350	0	350	300	0	0	0	0	0	0	0	0
	Baderjpur	14792	4920	1322	200	0	200	79	0	0	0	0	0	0	0	0
Dantewada	Katekalyan	17010	266	0	0	0	0	0	460	983	1181	0	0	0	0	0
	Dantewada	2129.53	1092.3	0	0	0	0	0	857.8	165	306	0	0	0	0	0
Kanker	Charama	27410	614	378	0	0	299	0	0	0	0	0	0	0	0	0
	Narharpur	29380	862	3750	208	0	856	0	0	0	0	0	0	0	0	0
Sukma	Sukma	27861	2170	336	0	275	0	0	0	0	0	0	0	0	0	0
	Chhindigarh	27654	1126	212	0	198	235	0	0	0	0	0	0	0	0	0
Narayanpur	Narayanpur	22780	7150	3460	0	0	1230	0	585	0	0	0	0	0	0	0
Total (Bastar Plateau) :-		267042	36564	15050	1527	596	3170	379	2912	1148	1487	0	0	0	0	0
Balrampur	Shankargarh	11560	4830	730	0	0	1310	0	0	0	0	230	0	0	0	0
	Kusmi	18910	6815	890	0	0	620	0	0	0	0	170	0	0	0	0
Korea	Sonhat	5740	1785	1464	0	1310	0	0	1250	0	0	0	0	0	0	0
	Bharatpur	12040	2485	3070	0	620	0	0	3020	0	0	0	0	0	0	0
Surguja	Mainpath	12230	1160	530	0	0	560	0	0	0	0	0	559	550	0	0
	Lundra	19087	3300	1670	0	0	1200	0	0	0	0	0	0	750	0	0
Surajpur	Odgi	10828	2067	908	0	0	988	0	0	0	0	0	0	613	0	0
	Pratappur	19500	4500	1550	0	0	1600	0	0	0	0	0	0	1400	0	0
Jashpur	Manora	16532	915	816	0	0	284	0	0	0	0	0	0	4972	0	0
	Pathalgaon	35000	3750	3500	0	0	3300	0	0	0	0	0	0	1100	0	0
Total (Northern Hills) :-		161427	31607	15128	0	1930	9862	0	4270	0	0	400	559	9385	0	0
Mungeli	Mungeli	39933	0	0	0	0	810	0	0	0	0	0	0	137	5490	507
Balodabazar	Bilagarh	37800	0	669	0	0	60	43	0	0	0	0	0	138	0	0
Total (Chhattisgarh Plains)		77733	0	669	0	0	870	43	0	0	0	0	0	275	5490	507
Total :-		506202	68171	30847	1527	2526	13902	422	7182	1148	1487	400	559	9660	5490	507

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

Cropping pattern: Rabi

The increase in the growth rate in the area of Rabi crops is also due to the intensive efforts of the state government for increasing the double cropped area. Increase in irrigation sources through different schemes of state Govt., played major role to increase the double-cropped area. Area under cereals, pulses and oilseeds has increased significantly. In cereal crops the area under summer paddy and wheat has increased significantly in case of pulses kulthi and green gram and in case of oilseeds kusum has increased significantly. Area under sugarcane has increased 555.24 percent over the years. Productivity of pea, lathyrus and lentil has decreased over the years (Table 19).

Table: - 19 Area under Rabi crops (Area in 000 ha.)

S. No.	Name of Crops	TE 2001-02 Average	TE 2015-16 Average	% change
1	Wheat	99.27	153.29	54.42
2	Summer paddy	52.74	194.04	267.92
3	Jowar etc.	5.56	5.79	4.14
Total Cereals		157.57	422.33	168.03

4	Gram	184.26	365.41	98.31
5	Pea	13.78	45.41	229.54
6	Lentil	16.32	25.8	58.09
7	Green Gram	6.92	25.36	266.47
8	Black gram	5.79	13.27	129.19
9	Kulthi	3.22	29.78	824.84
1	Tivada	402.61	321.13	-20.24
11	Other Pulses	2.69	4.62	71.75
Total pulses		635.6	831.28	30.79
12	Mustered toria	51.05	137	168.36
13	Linseed	74.95	58.5	-21.95
14	Kusum	0.58	5.7	882.76
15	Sunflower	3.87	9.16	136.69
16	Other Oilseeds	0.1	4.27	4,170.00
Total oilseeds		130.55	244.69	87.43
17	Sugarcane	4.2	27.52	555.24
18	Vegetables	125.95	166.07	31.85
Total		1053.89	1691.91	60.54

Area under Rabi crops in selected blocks: Wheat, maize, Rape-seed & mustard, Horse gram and lathyrus are the major crops grown in the selected blocks in Rabi seasons. Maize, Horse Gram, rape & mustard are the major crops in Bastar plateau. While wheat Rape seed-Mustard, linseed & Black Gram are the major crops in northern hill. In case of Chhattisgarh Plains, Lathyrus, Horse Gram wheat and lentil are the major crops (table 20).

Table 20: Area under Rabi crops in selected blocks (2017-18)

Area of Rabi Crops in Selected Blocks (in Ha.)																
District	Block	Wheat	Maize	Checkpe a	Pea	Lentil	Green Gram	Black Gram	Musturd/ Rapeseed (Pathalga on)	Jowar	Kulthi	Lineseed	Horse Gram	Ground Nut	Lathyrus	Safflower
2	3	5	6	7	8	9	10	12	13	14	15	16	17	18	19	20
Bastar	Bastar	495	2580	490	390	55	0	0	0	0	0	0	0	0	0	0
	Bakawand	400	2200	450	550	300	0	0	0	0	0	0	0	0	0	0
Bijapur	Bairamgarh	0	82	0	0	0	294	173	194	0	0	0	91	0	0	0
	Bhopalpatnam	0	0	0	0	0	251	170	0	268.4	130	0	0	469	0	0
Kondagaon	Makdi	0	5300	0	800	0	0	0	750	0	0	550	1200	0	0	0
	Baderjpur	350	5180	0	0	0	0	0	1870	0	0	920	1050	0	0	0
Dantewada	Katekalyan	85	0	0	0	0	56	49	1071	0	0	0	917	0	0	0
	Dantewada	25	0	0	0	0	140	0	81	0	0	0	80	0	0	0
Kanker	Charama	422	402	0	0	0	0	0	0	0	115	300	567	0	0	0
	Narharapur	488	712	0	0	0	0	0	0	0	1183	2621	972	0	0	0
Sukma	Sukma	0	373	0	0	0	387	236	0	0	190	0	82	0	0	0
	Chhindgarh	0	876	0	0	0	350	302	0	0	320	0	95	0	0	0
Narayanpur	Narayanpur	265	2476	0	530	0	0	0	1880	0	0	0	980	0	0	0
Total (Baster Plateau) :-		2530	20181	940	2270	355	1478	930	5846	268.4	1938	4391	6034	469	0	0
Balrampur	Shankargarh	1870	0	190	0	0	0	0	2660	0	0	390	360	0	0	0
	Kusmi	2490	0	190	0	0	0	0	2880	0	0	450	370	0	0	0
Korea	Sonhat	1140	690	0	0	0	0	2470	0	0	0	760	275	0	0	0
	Bharatpur	3150	1510	0	0	0	0	1740	0	0	0	3680	860	0	0	0
Surguja	Mainpath	510	0	0	220	0	0	0	1150	0	0	20	430	0	0	0
	Lundra	2665	0	0	915	0	0	0	2630	0	0	422	825	0	0	0
Surajpur	Odgi	2000	0	650	280	0	0	0	1200	0	0	700	0	0	0	0
	Pratappur	3100	0	650	550	0	0	0	3400	0	0	300	0	0	0	0
Jashpur	Manora	115	0	25	0	25	0	0	0	0	0	0	0	0	0	0
	Pathalgaon	350	0	1020	106	155	0	0	1150	0	0	0	0	0	0	0
Total (Northern Hills) :-		17390	2200	2725	2071	180	0	4210	15070	0	0	6722	3120	0	0	0
Mungeli	Mungeli	3810	0	0	0	140	0	0	0	0	0	0	10896	0	19310	91
Balodabazar	Bilaigarh	190	0	0	30	0	0	0	50	0	0	0	160	15	0	0
Total (Chhattisgarh Plains) :-		4000	0	0	30	140	0	0	50	0	0	0	11056	15	19310	91
Total :-		23920	22381	3665	4371	675	1478	5140	20966	268.4	1938	11113	20210	484	19310	91

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

Area under summer (Zaid) crops in selected blocks: Sugar cane followed by ground nut and maize are the major Zaid (summer) Crops. Black gram, green gram, and sunflower are the major crops in baster plateau. Sugar cane, ground nut and maize are the major crops in Northern Hill. In case of Chhattisgarh Plains vegetable crops like bitter gourd, Okra, brinjal & cucumber are major crops (table – 21).

Table – 21: Area under summer (Zaid) crops in selected blocks (ha.) (2017-18)

Area of Zaid Crop in Selected Blocks (in Ha.)															
District	Block	Black Gram	Green Gram	Maize	Other Crop	Sun Flower	Ground Nut	Sugar cane	Water melon	Vegetables	Brinjal	Okra (Bhindi)	Cucumber	Bitter Gourd	Bottle Gourd
2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Bastar	Bastar	240	180	0	0	0	0	0	0	0	0	0	0	0	0
	Bakawand	210	200	0	0	0	0	0	0	0	0	0	0	0	0
Bijapur	Bairamgarh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bhopalpatnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kondagaon	Makdi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Baderjpur	0	220	0	0	0	0	0	0	0	0	0	0	0	0
Dantewada	Katekalyan	7	6.5	8	3	0	0	0	0	0	0	0	0	0	0
	Dantewada	20	0	8	15	0	0	0	0	0	0	0	0	0	0
Kanker	Charama	33	48	0	0	0	0	0	0	0	0	0	0	0	0
	Narharpur	225	175	0	0	75	0	0	0	0	0	0	0	0	0
Sukma	Sukma	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Chhindigarh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Narayanpur	Narayanpur	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (Baster Plateau) :-		735	830	16	18	75	0	0	0	0	0	0	0	0	0
Balrampur	Shankargarh	40	0	125	0	0	10	0	0	0	0	0	0	0	0
	Kusmi	35	0	190	0	0	10	0	0	0	0	0	0	0	0
Korea	Sonhat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bharatpur	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surguja	Mainpath	0	0	75	0	0	0	0	0	0	0	0	0	0	0
	Lundra	100	0	65	0	0	240	0	0	0	0	0	0	0	0
Surajpur	Odgi	0	50	75	0	0	5	8	50	0	0	0	0	0	0
	Pratappur	0	0	170	0	0	0	3000	0	0	0	0	0	0	0
Jashpur	Manora	27	18	60	0	0	0	0	0	0	0	0	0	0	0
	Pathalgaon	150	110	120	0	0	0	0	0	0	0	0	0	0	0
Total (Northern Hill) :-		352	178	880	0	0	265	3008	50	0	0	0	0	0	0
Mungeli	Mungeli	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Balodabazar	Bilalgarh	0	0	0	0	0	0	0	0	0	5	10	4	6	8
Total (Chhattisgarh Plains) :-		0	0	0	0	0	0	0	0	0	5	10	4	6	8
Total :-		1087	1008	896	18	75	265	3008	50	0	5	10	4	6	8

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

Productivity of Kharif crops:

The productivity of crops grown in Kharif has increased in the state during TE 2001-02 to TE 2015-16 (table – 22).

Table: - 22 Productivity of kharif crops (Kg. Per ha.)

S. No.	Name of Crops	TE 2001-02 Average	TE 2015-16 Average	% change
1	Paddy	1162.66	1759.66	51.35
2	Maize	1139.33	1880	65.01
3	Miner Millet	207	297.66	43.80
Total Cereals		1100	1540	40.00
4	Pigeon pea	470	619.66	31.84

5	Green Gram	270	400.66	48.39
6	Black Gram	280	404.33	44.40
7	Khulthi	302.66	403.33	33.26
Total pulses		146.66	425.48	190.11
8	Ground Nut	1150.33	1333.33	15.91
9	Till	231	353	52.81
10	Soybean	175.66	685.33	290.15
11	Ram till	663.33	213.33	-67.84
12	Sunflower	271.33	506.33	86.61
Total oilseeds		468	655.66	40.10

Source: Directorate of Agriculture, Chhattisgarh Government, Raipur, 2016-17.

Production of Kharif crops in selected blocks: In Bastar Plateau, Paddy, Maize, black gram & pigeon pea are the major crops grown in Kharif season in the selected blocks. In case of Northern Hill Paddy, maize, black gram, Pigeon Pea, Ground Nut and minor millets are the major crops. Paddy, soybean, Pigeon Pea, black gram and ground nut are the major crops grown in Kharif season (table - 23).

Table: – 23: Production of Kharif crops in selected blocks (2017-18)

District	Block	Paddy	Maize	Black Gram	Ragi	Green Gram	Pigeon Pea	Niger	Minor Millet	Pulses	Oil Seeds	Kulthi	Tau	Ground Nut	Soyabean	Sugarcane
2	3	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20
Bastar	Bastar	48645	14022	879.5	211.7	0	0	0	94.5	0	0	0	0	0	0	0
	Bakawand	28798	11576	561	287.4	0	0	0	206.2	0	0	0	0	0	0	0
Bijapur	Bairamgarh	29209	1319	108.8	0	47	0	0	72	0	0	0	0	0	0	0
	Bhopalpattnam	14962	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kondagaon	Makdi	481100	18000	1620	5180	0	5180	84	0	0	0	0	0	0	0	0
	Baderjpur	66.56	20.66	15.86	1.6	0	1.6	5.5	0	0	0	0	0	0	0	0
Dantewada	Katekalyan	2721.6	31.92	0	0	0	0	0	41.4	68.81	47.25	0	0	0	0	0
	Dantewada	3193.5	131.01	0	0	0	0	0	34.31	13.25	7.64	0	0	0	0	0
Kanker	Charama	87163	2093	280	0	0	397	0	0	0	0	0	0	0	0	0
	Narharpur	94016	2858	3000	62	0	513	0	0	0	0	0	0	0	0	0
Sukma	Sukma	45961	4118	345	0	336	0	0	0	0	0	0	0	0	0	0
	Chhindgarh	48200	1591	235	0	246	280	0	0	0	0	0	0	0	0	0
Narayanpur	Narayanpur	44640	20663	1972	0	0	762	0	315	0	0	0	0	0	0	0
Total (Baster Plateau) :-		928676	76424	9017	5743	629	7134	89.5	763.4	82.06	54.89	0	0	0	0	0
Balrampur	Shankargarh	17051	13185	701	0	0	778	0	0	0	0	111	0	0	0	0
	Kusmi	27644	18264	846	0	0	1630	0	0	0	0	83	0	0	0	0
Korea	Sonhat	13202	2052.8	1303	0	406.1	0	0	500	0	0	0	0	0	0	0
	Bharatpur	4214	124.25	122.8	0	18.6	0	0	120.8	0	0	0	0	0	0	0
Surguja	Mainpath	29352	2088	371	0	0	448	0	0	0	0	0	7267	660	0	0
	Lundra	51534	3960	1169	0	0	720	0	0	0	0	0	0	675	0	0
Surajpur	Odgi	23821.6	3906.6	422.4	0	0	642.2	0	0	0	0	0	0	873.52	0	0
	Pratappur	42900	8505	721	0	0	1040	0	0	0	0	0	0	1995	0	0
Jashpur	Manora	29757.6	2196	367.2	0	0	144	0	0	0	0	0	0	1489.9	0	0
	Pathalgaon	6300	4120	280	0	0	320	0	0	0	0	0	0	1000	0	0
Total (Northern Hills) :-		245776	58402	6303	0	424.7	5722	0	620.8	0	0	194	7267	6693	0	0
Mungeli	Mungeli	10761.9	0	0	0	0	127.8	0	0	0	0	0	0	22.8	796.8	220.5
Balodabazar	Bilaigarh	143640	0	535	0	0	90	21	0	0	0	0	0	207	0	0
Total (Chhattisgarh Plains)		154402	0	535	0	0	217.8	21	0	0	0	0	0	229.8	796.8	220.5
Total :-		1328854	134825	15855	5743	1054	13074	110.5	1384	82.06	54.89	194	7267	6923	796.8	220.5

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

Productivity of Rabi crops:

The productivity of crops grown during Rabi season has increased in the state during TE 2001-02 to TE 2015-16 except pea, lentil and lathyrus (table – 24).

Table – 24 Productivity of rabi crops (in Kg. Per ha.)

S. No.	Name of Crops	TE 2001-02 Average	TE 2015-16 Average	% change
1	Wheat	1044.33	1323.66	26.75
2	Summer paddy	1798.33	2438.66	35.61
Total Cereals		3645	1895.33	-48.00
3	Gram	780.66	893	14.39
4	Pea	358.33	349.66	-2.42
5	Lentil	325	299.33	-7.90
6	Green Gram	257.66	292.66	13.58
7	Black gram	241	260.66	8.16
8	Kulthi	276.33	336	21.59
9	Lathyrus	558	556.66	-0.24
Total pulses		601.33	655	8.93
10	Mustered toria	370.66	510.33	37.68

11	Linseed	290	396.66	36.78
12	Kusum	255	267.66	4.96
13	Sunflower	364.66	520.66	42.78
Total oilseeds		322.66	556.66	72.52
14	Sugarcane	2556	2856.33	11.75

Source: Directorate of Agriculture, Chhattisgarh Government, Raipur, 2016-17.

Production of Rabi crops in selected blocks: In Rabi season Green Gram, Black Gram, Sunflower and Maize are the major Crops in Bastar Plateau. In case of Northern Hills, wheat, rape & mustard and pea are the major crops. Horse gram, lathyrus and wheat are important crops in CG plains (table - 25).

Table – 25: Production of Rabi crops in selected blocks (2017-18)

District	Block	Wheat	Maize	Checkp ea	Pea	Lentil	Green Gram	Black Gram	Mustur d/ Rapesee d	Jowar	Kulthi	Linesee d	Horse Gram	Ground Nut	Lathyru s	Safflow er
2	3	5	6	7	8	9	10	12	13	14	15	16	17	18	19	20
Bastar	Bastar	668.25	8462.4	477.45	409.5	39.87	0	0	0	0	0	0	0	0	0	0
	Bakawand	360	3960	540	192	270	0	0	0	0	0	0	0	0	0	0
Bijapur	Bairamgarh	0	123	0	0	0	121	65.74	58.2	0	0	0	46.92	0	0	0
	Bhopalpatnam	0	0	0	0	0	85.34	47.6	0	201.3	61.1	0	0	586.3	0	0
Kondagaon	Makdi	0	16000	0	4160	0	0	0	502	0	0	2475	7800	0	0	0
	Baderjpur	5.6	279.7	0	0	0	0	0	11.2	0	0	7.3	12.6	0	0	0
Dantewada	Katekalyan	5.1	0	0	0	0	3.92	3.43	64.26	0	0	0	55.02	0	0	0
	Dantewada	2.05	0	0	0	0	11.2	0	2.025	0	0	0	9.6	0	0	0
Kanker	Charama	789	1608	0	0	0	0	0	0	0	56	138	493	0	0	0
	Narharpur	856	3204	0	0	0	0	0	0	0	236	786	920	0	0	0
Sukma	Sukma	0	510	0	0	0	175	195	0	0	165	0	125	0	0	0
	Chhindgarh	0	962	0	0	0	160	249	0	0	277	0	145	0	0	0
Narayanpur	Narayanpur	437	7672	0	265	0	0	0	827	0	0	0	588	0	0	0
Total (Baster Plateau) :-		3123	42781	1017.5	5026.5	309.87	556.46	560.77	1464.7	201.3	795.1	3406.3	10195	586.3	0	0
Balrampur	Shankargarh	3516	486	0	0	0	0	0	2155	0	0	199	371	0	0	0
	Kusmi	4656	488	0	0	0	0	0	2275	0	0	239	377	0	0	0
Korea	Sonhat	1277	379.5	0	0	0	0	129.75	0	0	0	380	490.88	0	0	0
	Bharatpur	630	151	0	0	0	0	52.2	0	0	0	110.4	51.6	0	0	0
Surguja	Mainpath	714	0	0	176	0	0	0	460	0	0	9.6	344	0	0	0
	Lundra	3464	0	0	2287	0	0	0	2367	0	0	253.2	577	0	0	0
Surajpur	Odgi	2900	0	540	162.4	0	0	0	726	0	0	343	0	0	0	0
	Pratappur	4495	0	540	319	0	0	0	2057	0	0	147	0	0	0	0
Jashpur	Manora	184	0	10	42.4	8	0	0	83.25	0	0	0	0	0	0	0
	Pathalgaon	735	0	918	0	124	0	0	1135	0	0	0	0	0	0	0
Total (Northern Hills) :-		22571	1504.5	2008	2986.8	132	0	181.95	11258	0	0	1681.2	2211.5	0	0	0
Mungeli	Mungeli	586.7	0	0	0	1060	0	0	0	0	0	0	1661.6	0	1264.8	6.3
Balodabazar	Bilaigarh	665	0	0	45	0	0	0	40	0	0	0	240	22	0	0
Total (Chhattisgarh Plains) :-		1251.7	0	0	45	1060	0	0	40	0	0	0	1901.6	22	1264.8	6.3
Total :-		26946	44286	3025.5	8058.3	1501.9	556.46	742.72	12763	201.3	795.1	5087.5	14308	608.3	1264.8	6.3

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

Production of Summer (Zaid) crops in selected blocks: On the basis of production, sugarcane, groundnut, maize and black gram were the major crops in the sampled blocks. However, black gram, green gram and sunflower were the major crops in Bastar Plateau. Sugarcane, ground nut & maize were the major crops in Northern Hills. In case of C.G. plains, vegetables bottle gourd, okra, brinjal & cucumber were main crops (table – 26).

Table – 26: Production of Summer (Zaid) crops in selected blocks (2017-18)

District	Block	Black Gram	Green Gram	Maize	Other Crop	Sun Flower	Ground Nut	Sugar cane	Water melon	Vegetables	Brinjal	Okra (Bhindi)	Cucumber	Bitter Gourd	Bottle Gourd
2	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Bastar	Bastar	152	110	0	0	0	0	0	0	0	0	0	0	0	0
	Bakawand	126	110	0	0	0	0	0	0	0	0	0	0	0	0
Bijapur	Bairamgarh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bhopalpattnam	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kondagaon	Makdi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Baderjpur	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0
Dantewada	Katekalyan	0.42	0.39	0.88	0.12	0	0	0	0	0	0	0	0	0	0
	Dantewada	1.6	0	0.96	1.96	0	0	0	0	0	0	0	0	0	0
Kanker	Charama	20	28	0	0	0	0	0	0	0	0	0	0	0	0
	Narharpur	135	105	0	0	22	0	0	0	0	0	0	0	0	0
Sukma	Sukma	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Chhindgarh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Narayanpur	Narayanpur	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total (Baster Plateau) :-		435	355	1.84	2.08	22	0	0	0	0	0	0	0	0	0
Balrampur	Shankargarh	80	0	319	0	0	1.6	0	0	0	0	0	0	0	0
	Kusmi	70	0	484	0	0	1.6	0	0	0	0	0	0	0	0
Korea	Sonhat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Bharatpur	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surguja	Mainpath	0	0	120	0	0	0	0	0	0	0	0	0	0	0
	Lundra	70	0	195	0	0	3600	0	0	0	0	0	0	0	0
Surajpur	Odgi	0	22.5	147	0	0	9	22.2	25	0	0	0	0	0	0
	Pratappur	0	0	334	0	0	0	8340	0	0	0	0	0	0	0
Jashpur	Manora	16.2	9.9	61.5	0	0	0	0	0	0	0	0	0	0	0
	Pathalgaon	7.5	5.5	9.6	0	0	0	0	0	0	0	0	0	0	0
Total (Northern Hills) :-		244	37.9	1670	0	0	3612	8362	25	0	0	0	0	0	0
Mungeli	Mungeli	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Balodabazar	Bilaigarh	0	0	0	0	0	0	0	0	0	2.5	4	2.5	7.5	11
Total (Chhattisgarh Plains) :-		0	0	0	0	0	0	0	0	0	2.5	4	2.5	7.5	11
Total :-		679	393	1672	2.08	22	3612	8362	25	0	2.5	4	2.5	7.5	11

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

4.1.8 Fertilizer Distribution and Consumption:

The distribution of fertilizer in Chhattisgarh in Kharif season has been found to be increased to 64 per cent in the year 2010-11 (388559 t) as compared to 2000-01 (236839 t), while the distribution of fertilizer in Rabi season has been found to be increased by 689.37% as compared to 2000-01 (15808 ton). Amongst all the major element of fertilizer the maximum change was observed in Potash (830.90%) fertilizer nutrient as compared to Nitrogen (684.29%) fertilizer nutrient and Phosphorous (663.54%) in Rabi season, while in Kharif the maximum increase was found in Phosphorous & Potash (76.88%) as compared to Nitrogen (55.95%) fertilizer nutrient. The farmers of Chhattisgarh used only 29.33 kg/ha fertilizer in Kharif season and 55.73 kg/ha in Rabi season. The average consumption of these nutrients was found below as compared to the average fertilizer consumption of India (165.58 kg N, 80.5 kg P₂O₅ and 35.14 kg K₂O in the year 2011) (table – 27).

Table 27: Fertilizer Distribution and Consumption in Chhattisgarh State.

Element	Kharif			Rabi		
	2017-18	2011	% Change	2017-18	2011	% Change
Nitrogen	257380	242747	6.03	73690	74719	-1.38
Phosphate	127580	114002	11.91	41420	38345	8.10

Potash	38900	31810	22.29	12470	11720	6.40
Total	423860	388559	9.09	127580	124784	2.24
Consumption in Kg/ha						
Nitrogen	54	51	5.88	48	42.97	11.71
Phosphate	27	23.95	12.73	27	22.05	22.45
Potash	8	6.68	19.76	8	6.74	18.69
Total	89	81.63	9.03	83	71.76	15.66

Consumption of Fertilizers in selected blocks: 39.7 kg/ha fertilizer consumption was observed in the selected blocks of Kharif season. Fertilizer consumption was higher in Chhattisgarh plains (142.36 kg/ha.) followed by 35.97 kg/ha. in northern hill and 26.95 kg/ha. in Bastar plateau (table – 28). Fertilizer consumption was very low in the selected blocks as compared to state average. The state government has taken the initiative to promote bio-fertilizers (Rizhobium, PSB & Azotobactor).

Table – 28: Consumption of Fertilizers in selected blocks (2017-18)

S.No.	District	Name of Block	Grass Cropped Area (In Hectares)	Consumption of Fertilizer In Nutrient (In MT)				Consumption KG/Hact.			
				N	P	K	TOTAL	N	P	K	TOTAL
1	2	3	4	5	6	7	8	9	10	11	12
1	Balodabazar	Bilagarh	38049	3640.6	1733.5	783.63	6157.72	95.68	45.56	20.6	161.84
2	Mungeli	Mungeli	45360	3581	1464.03	528.76	5573.75	78.95	32.28	11.66	122.88
Total (Chhattisgarh Plains) :-			83409	7222	3197.5	1312.4	11731	87.32	38.92	16.13	142.36
3	Jashpur	Manora	25117	148	132	20	300	5.89	5.26	0.8	11.94
4		Pathalgaon	54780	312	285	46	643	5.7	5.2	0.84	11.74
5	Koriya	Sonhat	16182	445	332	116	893	27.5	20.52	7.17	55.18
6		Bharatpur	28288	790	589	204	1583	27.93	20.82	7.21	55.96
7	Surguja	Lundra	29190	265	202	55.1	522.1	9.08	6.92	1.89	17.89
8		Mainpath	19374	142	135	37.5	314.5	7.33	6.97	1.94	16.23
9	Surajpur	Odgi	21957	507	278.4	52.4	837.8	23.09	12.68	2.39	38.16
10		Pratappur	33923	545	434.6	80.8	1060.4	16.07	12.81	2.38	31.26
11	Balrampur	Shankargarh	21210	664	433.1	190.1	1287.2	31.31	20.42	8.96	60.69
12		Kusmi	30440	960	615	271.1	1846.1	31.54	20.2	8.91	60.65
Total (Northern Hills) :-			280461	4778	3436.1	1073	9287.1	18.54	13.18	4.25	35.97
13	Jagdalpur	Bastar	36170	601.4	521.9	162.4	1285.7	16.63	14.43	4.49	35.55
14		Bakawand	31033	517	446.8	138.1	1101.9	16.66	14.4	4.45	35.51
15	Kondagaon	Vishrampur	32146	406.4	310	121.4	837.8	12.64	9.64	3.78	26.06
16		Makdi	27874	353.1	258.4	105.3	716.8	12.67	9.27	3.78	25.72
17	Narayanpur	Narayanpur	33160	163.1	131.6	50.55	345.25	4.92	3.97	1.52	10.41
18	Dantewada	Dantewada	27765	0	0	0	0	0	0	0	0
19		Katekalyan	23330	0	0	0	0	0	0	0	0
20	Sukma	Sukma	28644	91.9	69.4	9.95	171.25	3.21	2.42	0.35	5.98
21		Chhindigarh	32790	105.2	81.1	11.3	197.6	3.21	2.47	0.34	6.03
22	Beejapur	Bhairamgarh	18775	185.5	130	2.55	318.05	9.88	6.92	0.14	16.94
23		Bhopal Patnum	13295	131.1	91.3	1.9	224.3	9.86	6.87	0.14	16.87
24	Kanker	Charama	30678	1555	698.4	375.6	2629	50.69	22.77	12.24	85.7
25		Narharpur	35774	1810	814.3	437.8	3062.1	50.6	22.76	12.24	85.6
Total (Bastar Plateau) :-			371434	5920	3553.2	1416.9	10890	14.69	8.92	3.34	26.95
Total :-			735304	17919	10187	3802.2	31908	22.04	13.02	4.73	39.79

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

Consumption of Pesticides in selected blocks: Consumption of Pesticide in selected blocks is found to be 0.08 kg/ha. It was found to be less in northern hill as compared to Bastar plateau. However the values are very low as compared to state and national consumption of pesticides (table – 29).

Table – 29: Consumption of Pesticides in selected blocks (2017-18)

S.No.	District	Name of Block	Grass Cropped Area (In Hectares)	Year 2018-19						Gradient			Consumption (Kg./Ha.)
				Kharif		Rabi		Total		Liquit (Liter)	Solid (Kg.)	Total	
				Liquit (Liter)	Solid (Kg.)	Liquit (Liter)	Solid (Kg.)	Liquit (Liter)	Solid (Kg.)				
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Surguja	Lundra	29190	1824	15	1321	11	3145	26	1258	10	1268	0.043
		Mainpath	19374	1501	13	738	7	2239	20	896	8	904	0.047
2	Surajpur	Odgi	21957	500	200	100	20	600	220	240	88	328	0.015
		Pratapapur	33923	2040	490	1250	270	3290	760	1316	304	1620	0.048
3	Balrampur	Shankargarh	21210	41	102	54	101	95	203	38	81	119	0.006
		Kusmi	30440	162	320	157	286	319	606	128	242	370	0.012
4	Jashpur	Manora	25117	1668	3	308	2	1976	5	790	2	792	0.032
		Pathalgaon	54780	1398	35	819	1	2217	36	887	14	901	0.016
5	Koriya	Sonhat	16182	4120	38	1975	0	6095	38	2438	15	2453	0.152
		Bharatpur	28288	0	62	1700	0	1700	62	680	25	705	0.025
Total (Northern Hill) :-			280461	13254	1278	8422	698	21676	1976	8671	789	9460	0.396
6	Jagdalpur	Bastar	36170	5264	0	3250	125	8514	125	3406	50	3456	0.096
		Bakawand	31033	6120	2330	5187	843	11307	3173	4523	1269	5792	0.187
7	Kondagaon	Baderajpur	32146	1235	568	869	516	2104	1084	842	434	1275	0.04
		Makdi	27874	986	529	937	542	1923	1071	769	428	1198	0.043
8	Narayanpur	Narayanpur	33160	10036	3710	2043	5876	12079	9586	4832	3834	8666	0.263
9	Dantewada	Dantewada	27765	0	0	0	0	0	0	0	0	0	0
		Katekalyan	23330	0	0	0	0	0	0	0	0	0	0
10	Sukma	Sukma	28644	1237	0	712	0	1949	0	780	0	780	0.027
		Chhindgarh	32790	1600	0	947	0	2547	0	1019	0	1019	0.031
11	Beejapur	Bhairamgarh	18775	0	0	0	0	0	0	0	0	0	0
		Bhopal Pattnum	13295	0	0	0	0	0	0	0	0	0	0
12	Kanker	Charama	30678	5475	19873	434	7276	5909	27149	2364	10860	13223	0.431
		Narharpur	35774	4000	14028	332	5136	4332	19164	1733	7666	9398	0.263
Total (Bastar Plateau):-			35953	41038	14711	20314	50664	61352	20268	24541	44807	1.381	1.381
Grand Total :-			316414	54292	15989	28736	51362	83028	22244	33212	45596	9461.4	1.777

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

4.1.9 Horticulture

Horticulture is growing popularity owing to the high value of produce. The total area of the fruit crops in the state is 239676 Ha along with the production of 232881MT in the year 2015-16. The total area of vegetable crops in the state was recorded 438849 Ha in the year 2015-16 with the production of 6034801 MT. The total area of spices was 93662 Ha with the production of 659192 MT which was recorded in year 2015-16, while the area under flower cultivation is negligible in the state. The present area of floriculture in the state is 11427 Ha with the production of 52824 MT approximately in the year 2015-16.. The present area of aromatic and medicinal crops in the state is 8529 Ha with the production of 59972 MT in the year 2015-16 (table-30).

Table - 30 Area under horticultural Crops

	2014-15	2015-16	
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S	Name of Crops	Area in ha.	Production in T.	Area in ha.	Production in Tonnes	Productivity (m. Ton/ha.)
1	Fruits	225766	2154889	239676	2328811	9.72
2	Vegetables	414440	5697974	438849	6034801	13.81
3	Spices	91115	640027	93662	659192	7.04
4	Medicinal and Aromatic Plants	7953	55193	8529	59972	7.03
5	Flowers	10270	47589	11427	52824	4.63
Average area under Horticulture		149908.8	1719134.4	158428.6	1827120	8.446

Source: Directorate of Horticulture, Chhattisgarh Government, Raipur, 2016-17.

Organization and Institution in Selected Blocks: On an average 20 members were found in FPOs.

Few numbers of cold storage and Green house was found in the selected blocks. Only 17 number of Government nurseries were observed. Pre-cooling and ripening chambers were found only in Bastar Plateau (table - 31).

Table – 31: Organization and Institution in Selected Blocks (2017-18)

S. No.	District	Block	FPO Details		Nurseries (No.)		No. of Pack house	No. of Cold Storage	No. of Green House	No. of Pre-cooling & Ripening Chambers	No. of Assembly & Drying Yards
			Number of Groups	Member Count	Government	Private					
1	2	3	4	5	6	7	8	9	10	11	12
	Bastar	-	-	-	-	-	-	-	-	-	-
1		Bakawand	1	10	0	0	4	1	0	51	
2		Bastar	1	10	1	0	11	0	0	42	
	Bijapur	-	-	-	-	-	-	-	-	-	-
3		Bhopalpatanam	0	0	1	0	0	0	0	0	0
4		Bhairamgarh	0	0	1	0	0	0	0	0	0
	Dantewada	-	-	-	-	-	-	-	-	-	-
5		Dantewada	0	0	0	0	0	0	0	0	0
6		Kateklyan	0	0	0	0	0	0	0	0	0
	Kanker	-	-	-	-	-	-	-	-	-	-
7		Charama	42	452	1	0	4	0	0	0	0
8		Narayanpur	0	0	1	0	6	0	0	0	0
	Kondagaon	-	-	-	-	-	-	-	-	-	-
9		Makdi	0	0	0	0	44	0	0	9	0
10		Baderajpur	0	0	1	0	40	0	0	7	0
	Narayanpur	-	-	-	-	-	-	-	-	-	-
11		Narayanpur	8	160	2	0	15	0	5	0	0
	Sukma	-	-	-	-	-	-	-	-	-	-
12		Chhindgarh	0	0	0	0	7	0	0	0	0
13		Sukma	0	0	1	0	7	0	0	0	0
Total (Bastar Plateau) :-			52.00	632.00	9.00	0.00	138.00	1.00	5.00	109.00	0.00
	Balrampur	-	-	-	-	-	-	-	-	-	-
14		Shankargarh	6	441	1	-	5	-	-	-	-
15		Kusmi	-	-	1	-	2	-	-	-	-
	Jashpur	-	-	-	-	-	-	-	-	-	-
16		Manora	4	93	1	0	0	0	0	0	0
17		Pathalgaon	27	545	1	0	0	0	0	0	0
	Korea	-	-	-	-	-	-	-	-	-	-
18		Bharatpur	0	0	1	0	9	0	0	0	0
19		Sonhat	0	0	0	0	23	1	0	0	0
	Surajpur	-	-	-	-	-	-	-	-	-	-
20		Pratappur	0	0	1	0	0	0	0	0	0
21		Odgi	0	0	0	0	0	0	0	0	0
	Surguja	-	-	-	-	-	-	-	-	-	-
22		Lundra	0	0	0	0	0	0	3	0	0
23		Mainpath	0	0	1	0	0	0	2	0	0
Total (Northern Hills) :-			37.00	1079.00	7.00	0.00	39.00	0.00	5.00	0.00	0.00
	Balodabazar	-	-	-	-	-	-	-	-	-	-
24		Bilaigarh	0	0	0	0	0	0	0	0	0
	Mungeli	-	-	-	-	-	-	-	-	-	-
25		Mungeli	0	0	1	0	38	0	0	0	0
Total (Chhattisgarh Plains) :-			0	0	1	0	38	0	0	0	0
Grand Total :-			89.00	1711.00	17.00	0.00	215.00	1.00	10.00	109.00	0.00

Source: - Department of Horticulture, C.G.

4.1.10 Animal Husbandry

The rural economy in the State is dominated by small farmers (<2ha) comprising over 75 percent of the total farm households. The average size of land holdings in the State is 1.4ha, and is likely to decline with increasing population pressure. Under such a scenario, crop production alone cannot provide an adequate livelihood to the majority of rural population, and livestock could emerge as an important source of income and employment for the rural poor. They act as a buffer against income shocks of crop failure, which is a frequent phenomenon in Chhattisgarh. Livestock provide a continuous stream of outputs and thus income from livestock helps consumption smoothening. Species like poultry, goat, sheep, and pigs are of short-generation interval, have a high prolificacy rate and require less land, investment, and operational expenses and are better suited to the resource endowment of the poor. Cattle and buffalo are an important source of manure and draught power, which are vital to improving crop production and environment. Chhattisgarh is rich in livestock wealth. The state has about 150.85 lacs animal population out of which 98.13 lacs are cattle, 13.90 lacs are buffaloes, and the remaining 38.82 lacs are other animals, which include sheep, goat, horse, and other species. The State has about 179.55 lacs total poultry population (table 61 and fig.4). The Chhattisgarh State Livestock Department carries out various activities to support the sector including (1) veterinary health care service delivery; (2) improvement in breeding procedure

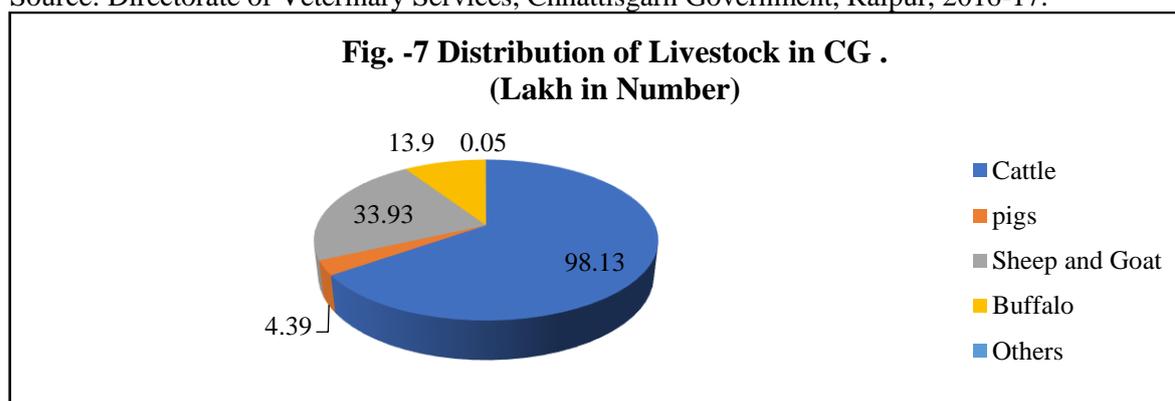
in animals and birds; (3) extension and human resource development; and (4) rural development through promotion of livestock rearing.

The distribution pattern of animals indicates that 42.8% of small ruminants and 67.9% of backyard poultry are reared by these sections together (Table 32). Small and semi medium farmers account for 50.6% of cattle and 52.4% of buffalo population. This clearly indicates that any poverty alleviation program for rural area in agricultural sector should include Animal Husbandry as a major component. By doing this it is expected to increase productivity and profitability of these poor farming communities bringing them out of the poverty cycle.

Table: - 32 Distributions of Livestock according to land holding in Chhattisgarh.

Category	% household 2003	Cattle	Buffalo	Small Ruminants	Rural Poultry	Pig
Landless (0.002ha)	17.6	0.3	0.2	0.7	2.5	11.1
Sub-marginal (0.002-0.5ha)	24.0	14.2	6.7	17.8	14.6	22.1
Marginal (0.5-1ha)	19.5	19.5	15.7	24.3	50.8	24.7
Small (1-2 ha)	19.8	25.0	34.8	23.7	19.6	9.4
Semi medium (2-4 ha)	13.8	25.6	17.6	27.2	8.7	19.2
Medium (4-10 ha)	4.7	12.9	19.6	6.3	3.7	13.3
Large (> 10 ha)	0.5	2.4	5.4	0.0	0.0	0.0
Total	100	100	100	100	100	100

Source: Directorate of Veterinary Services, Chhattisgarh Government, Raipur, 2016-17.



Details of livestock status in selected blocks: The selected blocks have found significant number of poultry, birds, goats and pigs. None of the hatcheries of poultry birds have been noticed. Average productivity per cow and buffaloes was found to be 1.47 litres/day and 1.88 litres/day respectively. It is far below the state and national average productivity of milk (table – 33).

Table – 33: Livestock status in selected blocks (2017-18)

Sr. No.	District	Block	Cows			Buffaloes			Poultry			No. of Goats	No. of Pig
			Head Count	No. of Productive animals	Production (in Litres)	Head Count	No. of Productive animals	Production (in Litres)	No. of Birds	No. of Hatcheries	Commercial Farms		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Bastar	Bastar	63180	7582	14214	11480	1033	1860	156706	0	0	8380	3072
2	Bastar	Bakawand	63610	7633	11068	4396	396	712	100895	0	2	7258	1467
3	Balrampur	Shankargarh	38101	4572	6630	3901	351	632	42200	0	0	19301	2205
4	Balrampur	Kusami	72000	8640	12528	8000	720	1296	20000	0	3	22893	5652
5	Bijapur	Bhairargarh	85467	10256	14871	18675	1681	3025	82456	0	0	46991	17421
6	Bijapur	Bhopal Patnam	38642	4637	6724	4657	419	754	47980	0	0	16166	2243
7	Baloda Bazar	Bilairgarh	83138	9977	14466	1592	143	258	23702	0	25	16781	223
8	Dantewada	Dantewada	48604	5832	8457	3268	294	529	73650	0	0	17696	7482
9	Dantewada	Katekalyan	29228	3507	5086	3622	326	587	39306	0	0	12247	6761
10	Kanker	Charama	12308	1477	2142	602	54	98	79049	0	5	12567	1213
11	Kanker	Narharpur	14316	1718	2491	1350	122	219	112524	0	2	23974	6076
12	Kondagaon	Bade Rajpur	12176	1461	2119	2611	235	423	100672	0	0	11963	12552
13	Kondagaon	Makdi	19778	2373	3441	4288	386	695	90036	0	0	15787	3163
14	Narayanpur	Narayanpur	79009	9481	13748	13758	1238	2229	83032	0	0	30214	17061
15	Sukma	Chhindigarh	80744	9689	14049	11499	1035	1863	82219	0	0	25296	11619
16	Sukma	Sukma	54174	6501	9426	4977	448	806	64708	0	0	21611	11849
17	Jashpur	Manora	42354	5082	7370	2396	216	388	36745	0	0	43006	5598
18	Jashpur	Pathalgaon	74213	8906	12913	4607	415	746	82725	0	2	76345	4328
19	Koriya	Bharatpur	53467	6416	9303	10972	987	1777	30581	0	0	19154	180
20	Koriya	Sonhat	28975	3477	5042	4360	392	706	20519	0	0	20474	21
21	Surajpur	Pratappur	62376	7485	10853	13876	1249	2248	84517	0	0	43353	2095
22	Surajpur	Odagi	48754	5850	8483	6368	573	1032	33106	0	0	29081	850
23	Sarguja	Lundra	31058	3727	5404	7116	640	1153	97036	0	0	61269	3423
24	Sarguja	Mainpat	18554	2226	3228	5935	534	961	40836	0	0	31487	2986
25	Mungeli	Mungeli	43443	5213	7559	7136	642	1156	18039	0	2	29611	181
Total			1197669	143720	211615	161442	14530	26154	1643239	0	41	662905	129721

Source: - Department of Veterinary of Live stock, C.G.

Veterinary facilities in selected Blocks: The status of Veterinary services is given in table 63. It states that services given for cattle improvement of dairy entrepreneur are quite low in the sampled blocks of the state. It is required to improve and update as per the norms (table – 34).
Table – 34: Veterinary facilities in selected Blocks (2017-18)

Sr. No.	District	Block	Veterinary (in Numbers)												
			No. of Gothans	No. of Vety Clinics	No. of Veterinary Hospital	No. of Veterinary Dispensaries	No. of AI Centre	No. of AI Sub Centre	No. of Government cattle breeding farm	No. of Government Foder Seed Development Farm	No. of Poultry Farm	No. of Goat breeding farm	No. of Pig breeding farm	No. of Cattle Development Centres	No. of Private AI workers
1	2	3	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Bastar	Bastar	39	0	2	7	0	1	0	0	0	0	1	0	9
2	Bastar	Bakawand	38	0	1	8	0	2	0	0	0	0	0	0	4
3	Balrampur	Shankargarh	5	0	1	4	0	0	0	0	5	0	0	0	4
4	Balrampur	Kusami	11	0	2	3	0	0	0	0	0	0	0	0	1
5	Bijapur	Bhairamgarh	3	0	2	0	0	0	0	0	0	0	0	0	1
6	Bijapur	Bhopal Patnam	3	0	2	3	0	0	0	0	0	0	0	0	0
7	Baloda Bazar	Bilagarh	12	0	3	6	0	0	0	0	0	0	0	0	7
8	Dantewada	Dantewada	6	0	1	4	1	2	0	0	0	0	0	0	0
9	Dantewada	Katekalyan	4	0	1	2	0	0	0	0	0	0	0	0	0
10	Kanker	Charama	14	0	2	6	0	1	0	0	0	0	0	0	4
11	Kanker	Narharpur	18	0	2	10	0	1	0	0	0	0	0	0	5
12	Kondagaon	Bade Rajpur	4	0	1	5	0	0	0	0	0	0	0	0	5
13	Kondagaon	Makdi	10	0	1	4	0	0	0	0	0	0	0	0	3
14	Narayanpur	Narayanpur	54	0	3	4	0	0	0	0	0	0	0	0	1
15	Sukma	Chhindgarh	11	0	2	3	0	2	0	0	0	0	0	0	7
16	Sukma	Sukma	5	0	2	1	0	1	0	0	0	0	0	0	1
17	Jashpur	Manora	20	0	1	3	0	1	0	0	0	0	0	0	0
18	Jashpur	Pathalgaon	37	0	4	2	1	8	0	0	0	0	0	0	4
19	Koriya	Bharatpur	30	0	2	4	0	0	0	0	0	0	0	0	13
20	Koriya	Sonhat	20	0	3	2	0	0	0	0	0	0	0	0	9
21	Surajpur	Pratappur	15	0	2	10	1	3	0	0	0	0	0	0	6
22	Surajpur	Odagi	6	0	3	3	0	0	0	0	0	0	0	0	3
23	Sarguja	Lundra	11	0	3	5	0	0	0	0	0	0	0	0	5
24	Sarguja	Mainpat	5	0	2	3	0	0	0	0	0	0	0	0	5
25	Mungeli	Mungeli	63	0	2	8	1	10	0	0	0	0	0	4	10
Total			444	0	50	110	4	32	0	0	5	0	1	4	107

Source: - Department of Veterinary of Live stock, C.G.

4.1.11 Fisheries

The fisheries sector has been recognised as a powerful income and employment generator and plays an important role in rural economy and is a source of nutritious food. More than 2.50 lacs fisher folks in the state depend on fisheries and aquaculture for their livelihood. Fisheries sector occupies an important place in the socio-economic development of the state. It caters primarily to the needs of socioeconomically weaker and backward communities of fisher folks, SCs and STs which contribute to the poorest section of the society. In addition to this fish is easily digestible and protein rich nutritive food commodity thus helps to remove malnutrition.

The state possesses vast and varied natural water area available for fish culture in the form of river, reservoirs, ponds, and tanks. About 1.578 lacs hectare average water area is available for fish culture. Besides the state has two major river systems viz Mahanadi and Godavari and their tributaries forming a network of 3573 km fishing in rivers is free for the member of scheduled tribes and scheduled castes. The fishing in these waters is on the decline due to unregulated and indiscriminate fishing. Fish production has increased to 141.65 percent over the years (table 35 & 37). The productivity of fish pond and irrigation reservoir was higher in Chhattisgarh as compared to national average (table 36). Per capita consumption was 7 kg per year. 70 percent population is dependent on fishes. Pond culture of fish under CHIRAAG would reduce dependency on capture fisheries which is already facing decline as well as ensure nutrition supply and income.

Table 35 Fish production in Chhattisgarh

Year	Production in ton.
2013-14	284958.99
2014-15	314164.67
2015-16	342299.1

Source: Directorate of Fisheries, Chhattisgarh Government, Raipur, 2016-17.

Table 36 Productivity of Fish (Kg./ha./year)

	Village pond	Irrigation Reservoir
National	2200	48
State	2483	69

Source: Directorate of Fisheries, Chhattisgarh Government, Raipur, 2016-17.

Table 37 Percentage change in fish production

TE 2005-06 Average	TE2014-15 Average	% change
129856.66	313807.56	141.6569

Source: Directorate of Fisheries, Chhattisgarh Government, Raipur, 2016-17.

Status of fisheries sector in the selected blocks: On an average 24 members were found in fishermen groups. Average area of community and individual ponds were 1.20 and 0.57 ha. About 7, 59, 8 and 5 no. of hatchery unit, seed rearing unit, demonstration unit as training Centre were found in selected blocks respectively. The detailed status of fisheries sector in sampled blocks is given in table 38.

Table - 38: Department of Fisheries Information (2017-18)

S. No.	District	Block	Fisheries		No. Community Pond	Area of Community Pond (Ha)	No. Individual Pond	Area of individual Ponds(Ha)	No. Hatchery Unit	No. Seed Rearing Unit	No. Demonstration Unit	No. Training Centre
			Number of Groups	Member Count								
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Balodabazar	Bilalgarh	18.00	396.00	386.00	588.13	30.00	18.14	0.00	0.00	0.00	0.00
2	Mungeli	Mungeli	3.00	80.00	315.00	597.39	128.00	176.43	1.00	1.00	0.00	0.00
Total (Chhattisgarh Plains):-			21.00	476.00	701.00	1185.52	158.00	194.57	1.00	1.00	0.00	0.00
3	Jaspur	Manora	2.00	50.00	216.00	105.00	102.00	32.91	0.00	0.00	0.00	0.00
4		Pathalgaon	9.00	290.00	501.00	258.41	269.00	100.68	0.00	1.00	0.00	1.00
5	Surguja	Lundra	24.00	355.00	218.00	283.40	71.00	32.97	0.00	0.00	0.00	0.00
6		Mainpat	8.00	91.00	59.00	76.30	26.00	14.49	0.00	0.00	0.00	0.00
7	Bahrapur	Shankargarh	2.00	47.00	104.00	126.39	120.00	95.00	0.00	0.00	0.00	0.00
8		kusami	3.00	76.00	100.00	87.43	150.00	135.50	0.00	0.00	0.00	0.00
9	Surajpur	Odgi	8.00	95.00	107.00	162.21	41.00	38.80	0.00	0.00	0.00	0.00
10		Pratappur	12.00	170.00	158.00	217.80	50.00	43.50	0.00	0.00	0.00	0.00
11	Korea	Bharatpur	17.00	205.00	225.00	282.13	78.00	66.30	0.00	1.00	0.00	1.00
12		Sonhat	24.00	232.00	150.00	615.28	65.00	37.70	0.00	1.00	0.00	1.00
Total (Northern Hills)			109.00	1611.00	1838.00	2214.35	972.00	597.85	0.00	3.00	0.00	3.00
13	Bastar	Bastar	6.00	304.00	473.00	334.82	538.00	141.79	1.00	0.00	0.00	1.00
14		Bakawand	6.00	168.00	444.00	364.99	267.00	82.48	0.00	0.00	0.00	0.00
15	Kanker	Charama	18.00	556.00	221.00	310.00	105.00	94.50	0.00	2.00	0.00	0.00
16		Narharpur	14.00	802.00	156.00	250.00	78.00	70.20	1.00	4.00	1.00	0.00
17	Narayanpur	Narayanpur	11.00	319.00	395.00	253.31	269.00	169.21	1.00	20.00	1.00	1.00
18	Kondagaon	Baderajpur	3.00	105.00	149.00	167.67	452.00	87.27	0.00	0.00	0.00	0.00
19		Makadi	0.00	0.00	197.00	100.81	363.00	84.61	0.00	0.00	0.00	0.00
20	Dantewada	Dantewada	6.00	157.00	120.00	143.40	247.00	206.33	0.00	0.00	0.00	0.00
21		Kateklyan	0.00	0.00	90.00	65.20	243.00	203.84	0.00	0.00	0.00	0.00
22	Sukma	Sukma	3.00	157.00	20.00	28.00	550.00	250.00	1.00	2.00	3.00	0.00
23		Chhindgarh	3.00	82.00	21.00	30.00	650.00	325.00	1.00	3.00	3.00	0.00
24	Bijapur	Bhairnagarh	3.00	80.00	190.00	391.00	309.00	338.00	1.00	24.00	0.00	0.00
25		Bholapatnam	4.00	95.00	157.00	380.00	204.00	240.00	0.00	0.00	0.00	0.00
Total (Bastar Plateau) :-			77.00	2825.00	2633.00	2819.20	4275.00	2293.23	6.00	55.00	8.00	2.00
Total			207.00	4912.00	5172.00	6219.06	5405.00	3085.65	7.00	59.00	8.00	5.00

Source: - Department of Fisheries, C.G.

Shows the District wise annual rainfall in mm for Chhattisgarh

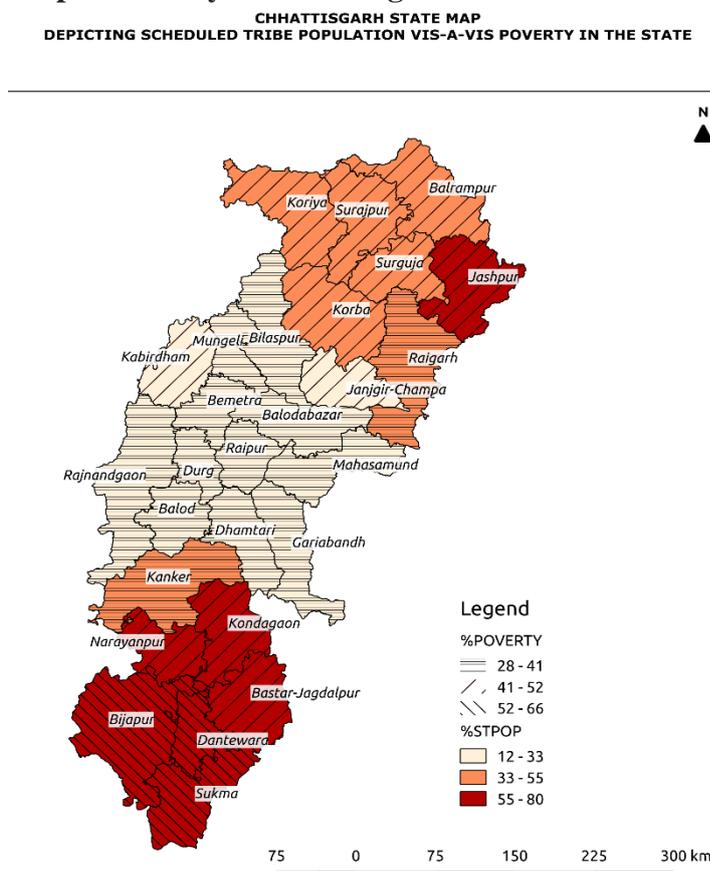
S. No.	Districts	2012	2013	2014	2015	2016	2017	2018	2019
1	Balodabazar	1221.8	1655.8	1163.5	932.8	1032.8	762.1	877.2	977.1
2	Bastar	1227.5	1278.3	1291.4	814.3	830.2	736.4	915.9	1005.8
3	Bilalgarh	1283.1	1358.8	1245.3	865.1	1117.9	991.1	1149.4	1288.9

4	asamund	1391.2	1355.7	1440.9	894.0	1030.9	1010.8	1069.9	1240.6
5	ntari	1096.3	1436.2	1254.6	873.7	1224.3	892.1	1250.0	1236.1
6		1154.4	1330.5	1057.5	846.0	1088.9	705.8	865.8	932.5
7	il	992.2	1411.7	1250.5	831.0	1222.5	1025.2	1036.4	1132.9
8	etara	1148.8	1353.4	1204.4	955.8	878.8	762.3	880.4	971.2
9	andgaon	1044.6	1505.5	1154.4	773.5	1091.9	790.0	941.2	966.4
10	ardha	753.8	855.3	1083.3	797.8	855.5	862.6	644.4	893.8
11	spur	1230.7	1229.0	1129.9	959.6	1112.1	841.9	843.1	1134.9
12	geli	1091.0	1342.2	1040.6	124.0	761.5	640.9	835.4	813.7
13	ir-Champa	1153.5	1282.6	1273.7	987.6	1197.0	925.8	987.3	1108.9
14	a	1236.8	1131.3	1227.2	994.9	1229.3	1099.2	1026.4	1372.7
15	arh	1071.8	1152.9	1092.4	1157.2	1400.4	961.8	942.9	1350.2
16	uja	994.3	1008.6	828.0	905.3	1098.3	1171.3	966.0	926.9
17	umpur	1199.8	867.1	970.4	1043.8	1797.3	1103.2	1066.3	1096.1
18	pur	943.4	1084.5	916.6	753.3	1128.3	1529.1	1557.8	1282.7
19	our	953.2	898.5	792.1	855.0	1178.4	1186.9	1000.1	1297.6
20	ya	1291.0	1280.0	1192.6	637.2	1203.9	776.1	903.4	1099.0
21	ur	1770.8	1540.1	1150.7	1262.4	1581.6	1476.0	1240.0	2011.1
22	agaon	1352.8	1540.8	1542.8	1149.2	1645.6	1375.4	1261.3	1774.3
23	yanpur	1474.7	1545.1	1408.6	1544.0	1775.3	1097.7	1226.3	2027.3
24	ewara	1528.8	1607.6	910.4	985.4	1391.6	1264.2	1196.9	1779.9
25	ma	2062.2	1756.4	1369.7	1640.3	1532.0	1767.4	1778.3	1821.9
26	ur	1904.4	2418.2	1389.7	1436.1	1713.4	1475.1	1953.5	2374.0
27	er	1368.1	1591.6	1550.5	1221.6	1814.0	1125.5	1345.3	1501.3
Average		1250.0	1363.6	1182.7	1008.9	1256.6	1286.9	1102.3	1311.8

Inter-regional/district variation

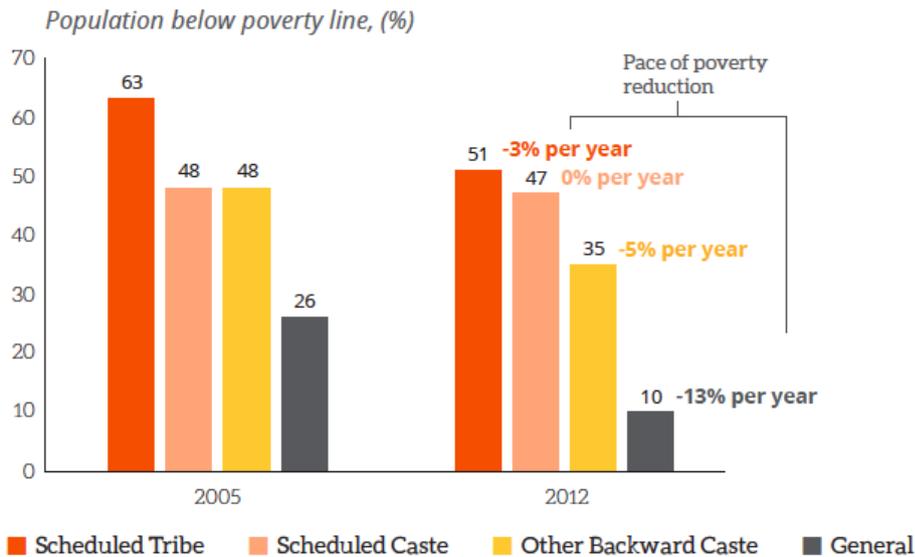
There is a social and spatial dimension to deprivation in Chhattisgarh. Most industrial development and primary sector growth are restricted to the plain areas of central Chhattisgarh. The northern and southern parts of the state that are also tribal dominated have higher poverty rates (Figures 2 and 3). Poverty rates – on average - are higher among Scheduled Tribes and Scheduled Castes (SCs)¹⁷¹ and have been declining relatively slowly compared to other social groups (Figure 4). In fact, poverty of STs is among the highest in the country: nearly 51 percent of ST households in Chhattisgarh were below the poverty line in 2011-12 compared to an average of 43 percent for such households across India. Poverty rates for ST households were only higher in three other states with fifth schedule areas in 2011-12¹⁷² – Odisha registered poverty rates for STs at 63 percent, Maharashtra at 54 percent and Madhya Pradesh at 53 percent.

Map 4: Poverty rates are higher in the ST dominated northern and southern districts



Source: NSS 2011-12 and Census of India, 2011

Figure 8: Poverty rates are high among STs and SCs and have been declining slowly



Source: World Bank (2016)

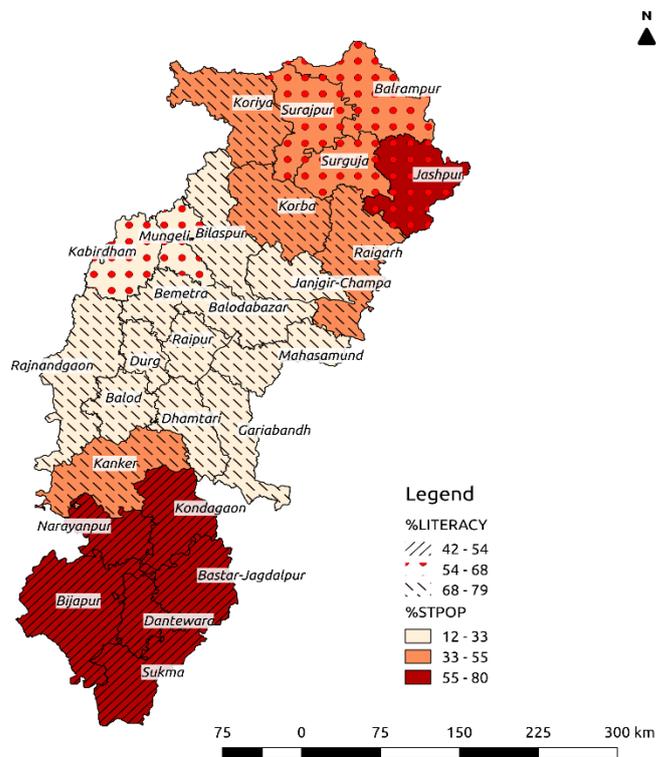
Another major challenge in the state is that of human development. Rural communities, especially ST households in the southern and northern region of the State continue to suffer from malnutrition, poor health, acute poverty and high rates of school dropouts. Although the State has made progress in addressing acute nutrition challenges particularly among women and children in recent times, according to the National Family Health Survey (NFHS 2015-16), 37 percent of children under-5 years have stunted growth and about 38 percent are underweight, while over 23 percent are wasted¹⁷³. One in every two women in the reproductive age group in the state is anaemic.

A disaggregation by background characteristics reveals that women and children belonging to ST households are worse off on education, nutrition and health related indicators. ST dominated districts in the southern region, for example, have literacy rates between 42 to 54 percent, significantly lower than the average for the state (around 71 percent, according to the Census of India in 2011; see Figure 5). Similarly, according to the latest round of the NFHS (2015-16), infant mortality rates among ST children are as high as 66 per 1000 births. In comparison, only 23 children belonging to the general caste category die within one year of their birth. Under-five mortality rates too are higher among ST children than children belonging to the general caste households (80 deaths per 1000 children compared with 28 deaths per 1000 children among the latter). On nutrition related indicators, the tribal dominated Bastar district in southern Chhattisgarh records the highest percentage of under-five children who are wasted (33 percent). Narayanpur at 49 percent and Dakshin Bastar(Dantewada) at 52 percent– also in the southern tribal dominated belt –record the highest percentage of under-five children who are stunted and underweight, respectively (see Figures 6, 7 and 8).

¹⁷³ The proportion of children under-5 years who were stunted, underweight or wasted in NFHS 2005-06 were respectively 53 percent, 47 percent and 19 percent suggesting that the state has made progress in reducing the extent of stunting and proportion of children whose weight is lower for their age. But wasting or the proportion of children who have lower weight for their height seems to have increased.

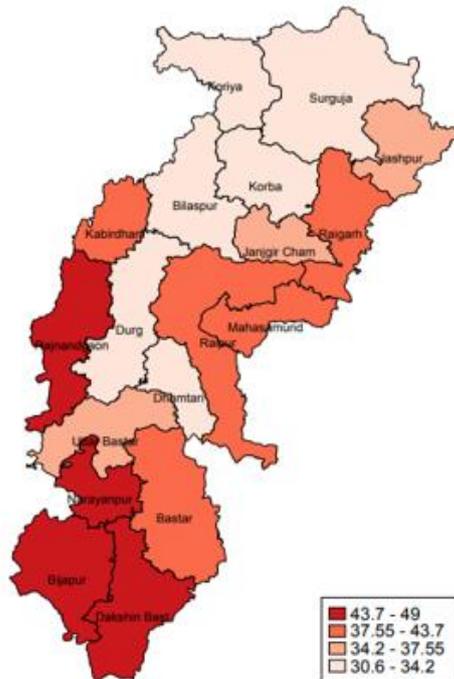
Map 5: ST Population in Chhattisgarh vs Literacy Rates

CHHATTISGARH STATE MAP
DEPICTING SCHEDULED TRIBE POPULATION VIS-A-VIS % LITERACY IN THE STATE



Source: Census of India, 2011

Map 6: Percentage of children who are stunted (by districts): Chhattisgarh, 2015-16

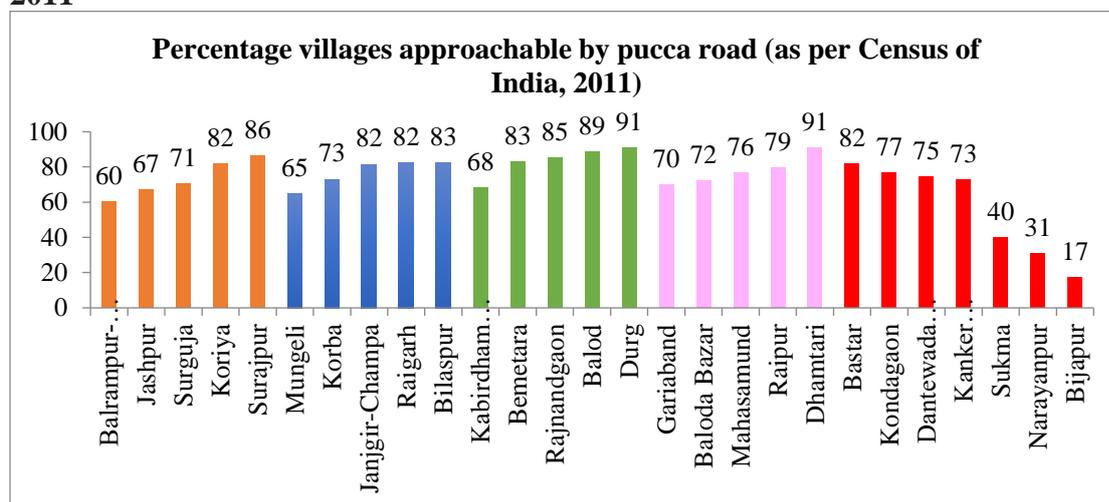


Source: NFHS-4 (2015-16)

Basic service delivery systems remain largely inadequate, especially in tribal dominated districts. The inadequacy of critical infrastructure such as health facilities, can explain in part the poor health and nutrition outcomes as indicated above. Data from the Rural Health Statistics suggest that between 2008 and 2018, Chhattisgarh added only 459 new sub-centers 72 new Primary Health Centers (PHC), and 33 new Community Health Centers (CHC). Of the 5,200 sub-centers in the state as on March 2018, 27 percent did not have regular water supply and 15 percent did not have electricity. While the majority of PHCs out of the total 793 PHCs had regular water supply and electricity and were well connected with an all-weather motorable road, only 35 percent functioned on a 24×7 basis. Further, only 5 out 169 CHCs in the state employed all four specialists as mandated by government norms (a surgeon, physician, obstetrician/ gynecologist and pediatrician). None of the sub-centers, PHCs and CHCs functioned as per the Indian Public Health Standards (IPHS), which serve as the reference point for public health care infrastructure planning and up gradation in Indian States and Union Territories. Health workforce in these facilities, particularly in PHCs and CHCs, presented a grim picture as well. As against 793 medical doctors sanctioned for PHCs, only 359 were in position. In CHCs, the non-availability of general physicians was an acute problem, with only 13 physicians in position as against the 163 sanctioned. The only respite was the availability of Auxiliary Nurse Midwives (ANM) in sub-centres and PHCs, which far exceeded their requirement. All of these indicators were much worse in the tribal dominant districts of the south and the north.

One of the reasons why services such as health do not function optimally is because service providers find it difficult to reach service delivery outposts. Figure 9 shows the percentage of villages in each district that were approachable by a pucca road in 2011. As can be seen from the graph, only 17 percent of villages in the district of Bijapur in the South were accessible by a pucca road. The majority of villages in Narayanpur and Sukma – also in the tribal belt in the South – were not approachable by a pucca road.

Figure 9: Percentage villages approachable by a pucca road (by districts): Chhattisgarh, 2011



Notes: In orange are districts in the northern Sarguja division; in blue, green and pink are districts in the central Bilaspur, Durg and Raipur divisions respectively; and in red are districts in the southern Bastar division.

The tribal districts in the South are also affected by insurgency/left wing extremism, although the intensity of such extremism has been declining over time. According to provisional data by the Ministry of Home Affairs, Chhattisgarh has been the worst affected state, accounting for nearly two in every five of the extremist related incidents and 51 percent of fatalities across

India. In 2016 and 2017, the central and the state government carried out a string of nearly 1500 anti-extremist operations, almost at the rate of two operations per day. One in every three operations resulted in an encounter, resulting in fatalities on either side. These operations have led to an ostensible reduction in extremism in the state¹⁷⁴. However, and despite the gains, studies attribute the perpetuation in extremism in the state to a faulty development paradigm which has been forced on tribal communities without addressing their needs and concerns. It is also a paradigm that has been largely usurped by dominant communities and disregarded the plight of the poor and marginalized¹⁷⁵.

All of these constraints in delivering services reflect in poor human development outcomes for tribal. According to the data obtained from the Health Management Information System (HMIS), in 2016-17, the maternal mortality rate in Chhattisgarh was 173 i.e. 173 women died for every 100,000 live births. While Chhattisgarh has been lauded for its success in reducing its maternal mortality rate from 221 in 2012-13 to 173 in 2016-17, absolute levels of maternal mortality in the state remain quite high, with the average MMR for India being 130. One of the reasons for such high mortality is that the percentage of institutional births in the state remains lower than the national average (around 70 percent compared to 79 percent for India). A district-wise disaggregation suggests that again the tribal dominated districts in the southern part of the state are worse off, with nearly one-third of all deliveries in districts like Bijapur and Sukma taking place at home, that too without a skilled birth attendant (see Figure 10). Similarly, according to an analysis of social sector spending conducted by Accountability Initiative, many schools are unable to deliver their services because of incompleteness of civil works in extremism affected districts. The same report found that in Bastar, only about one in every two students enrolled in secondary schools was in class on the day that the survey team conducted a surprise visit. Only 74 percent of secondary schools visited in the district had an electricity connection, and 58 percent had a usable toilet. Interviews with people in the surveyed villages suggested that students did not go to schools primarily on account of teacher absenteeism. Multiple interviews with state and district level officials, on the other hand revealed that Bastar was viewed by teachers as a “punishment posting”. Student incentive to go to primary schools too was less: only one in every four primary schools visited in Bastar had a functional kitchen to serve a mid-day meal, a big incentive for poor families to send their children to school. The problems in service delivery extended to the angan badi centers visited by the team: only 28 percent of angan badi visited in Bastar had a usable toilet, with most children (0-6 years old) defecating in the open (Accountability Initiative, 2017)¹⁷⁶.

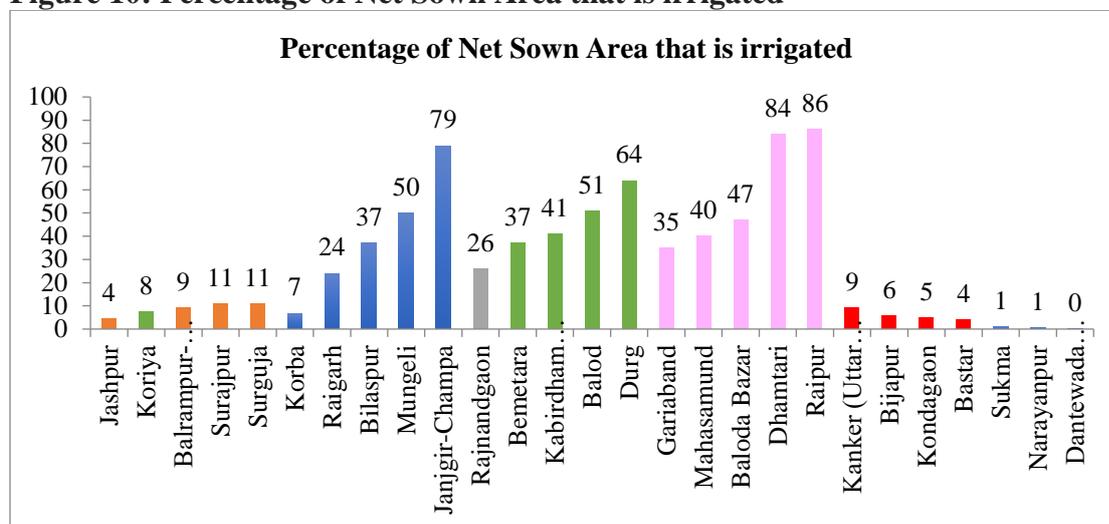
Besides poor service delivery, the tribal dominated northern and southern districts also seem to be locked in a low economic productivity trap. Infrastructure development, industrial and agricultural growth remains restricted largely to the central plain areas. The State also has a low cropping intensity (188 percent against 142 percent for India) and very low agricultural productivity (2,101 kg/ha as opposed to 4,409 kg/ha in Punjab). Further, the production systems in the southern plateau and northern hilly areas remain dependent primarily on rains (see Figure 10). While 20-60 percent of household income is dependent on NTFP collection, only 25 percent of the NTFP gathered is sold to other States, that too without adding substantial value. The processing clusters that exist do so mostly in the central region of the state.

¹⁷⁴<http://mantraya.org/state-of-play-left-wing-extremism-in-india-in-2017/>

¹⁷⁵ Planning Commission. (2008). Development Challenges in Extremist Affected Areas, Report of an Expert Group to Planning Commission. Government of India: New Delhi. Pp. 21. Available online at: http://planningcommission.nic.in/reports/publications/rep_dce.pdf -Accessed on 31 October 2019.

¹⁷⁶ Accountability Initiative. 2017. PAISA: An Analysis of Social Sector Spending in Chhattisgarh. New Delhi: Centre for Policy Research.

Figure 10: Percentage of Net Sown Area that is irrigated



Source: ?. Notes: In orange are districts in the northern Surguja division; in blue, green and pink are districts in the central Bilaspur, Durg and Raipur divisions respectively; and in red are districts in the southern Bastar division.

2.2. Intra-district variation: At the block, household and individual level

The process of targeting should also take into account the fact that there are considerable intra-district heterogeneities in Chhattisgarh. By accounts above, while it may seem prudent to target tribal districts for CHIRAAG interventions particularly in the southern and northern parts of the state, all blocks in the district are not equally vulnerable. As Table 1 shows, using the northern district of Kanker as an example, there is considerable intra-district variation on indicators of vulnerability like percentage of STs, percentage of children malnourished, percentage of population with access to a pucca road, percentage of population that is literate etc. – even within a district. For example, in Kanker, the blocks of Antagarh, Durgukondal and Koyalibeda appear to be more vulnerable having a higher percentage of children who are malnourished, a lower literacy rate, and poorer access to pucca roads. Interestingly, while the former two blocks have a high proportion of STs in their population, Koyalibeda does not have as many tribals. Yet, its child malnutrition levels are quite high suggesting that child malnutrition is not necessarily a ‘tribal’ challenge. On the other hand, Koyalibeda has poor access to pucca roads, allowing the intervention to test whether the absence of such infrastructure is what perpetuates the problem of child malnutrition.

Table 39: Intra-District Variation – Kanker

S. No.	Name of Block	% of STs	% literacy	% children malnourished	% access to pucca roads
1	Antagarh	80.75	56.91	32.95	28.75
2	Bhanupratapur	66.60	69.59	26.49	84.19
3	Charama	51.02	76.95	23.38	97.84
4	Durgukondal	76.60	62.62	36.86	44.62
5	Kanker	60.95	72.5	20.24	93.86
6	Koyalibeda	36.41	66.9	38.10	61.67
7	Narharpur	66.84	68.62	27.51	87.63
District Average		55.4	70.28	27.09	72.86

Annex 1 provides a profile of all blocks under districts selected for CHIRAAG. It suggests that not all blocks are the same and even in intervention districts, some are poorer as visible through their low levels of literacy, high levels of child malnutrition, limited access to pucca roads, dependence on rain or groundwater irrigation (i.e. because of absence of canal irrigation), and high proportion of households with the monthly income of the highest earning member below Rs. 5000.

At the household level, similarly, tribal households and their children are among the most vulnerable on indicators of nutrition and health. Tribal children tend to be more stunted, wasted and underweight than other children, on average, and tribal women and girls tend to be more anaemic. As discussed earlier, poverty is very high among the ST community who suffer from other forms of deprivation as well. Nearly one in every two tribal households in Chhattisgarh fell below the state's official poverty line in 2011-12. Further, while the pace of poverty reduction accelerated in the State between 2004-05 and 2011-12, no such gains were seen for ST communities, with poverty declining but at a very sluggish pace, for them. Only 18 percent of ST households said they had drinking water on their premises in 2012, compared to 65 percent of non ST/non SC households. Households practising open defecation among the STs was also unusually high (84 percent in 2011-12 compared to 24 percent for non ST/non SC households).

2.3. Intra-group variation

Any intervention that aims to target tribal households or districts in the state, must recognize that the Scheduled Tribes are not entirely homogenous. In fact, the heterogeneity among the tribes is quite distinct with each tribe being quite different from the other in terms of language and dialect, customs, cultural practices and life style. Gond, Bhunjia, Baiga, Bisonhorn Maria, Parghi, Muria, Halba, Bhatra, Parja, Dhurvaa, Muriya, DandamiMariya, Dorla, Dhanwar, Kol, Korwa, Rajgond, Kavar, Bhaiyana, Binjwar, Savra, Manji, Bhayna, Kamar, Munda and Abujmaria are some of the prominent tribes of Chhattisgarh.

Among these, the Gond are the largest tribal group, primarily concentrated in the southern districts of the state (Bastar region). The Gond are traditionally agriculturalists and some practice shifting cultivation even today. Other major activities of the Gond include collecting forest produce, fishing, hunting, and forging metal goods in cottage industries. Gond also have a special skill in that they know the medicinal value of each plant. As there are no proper health facilities in several areas, they still follow the traditional system of medicines and use plants and herbs for curing various ailments. They are also known for their norms around gender equality that make no difference between a boy and girl child and promote practices like remarriage of widows. They tend to live away from the roads, deep into the forest.

The Baiga are another major tribal group in Chhattisgarh and are found concentrated in a few districts in the State. These include Mungeli, Kabirdham, Bilaspur, Rajnandgaon and Koriya. The Baigas tend to dress with few clothes on their body and tend to rely usually on collection of minor forest produce, farming and casual wage labour to survive.

The Bhil of Chhattisgarh are known for their archery skills. They tend not to be concentrated in clusters, but are spread throughout Bilaspur, Raipur and Durg. They tend to draw colorful pictures on the walls of their home – a dying art known as Pithora.

The state of Chhattisgarh also has five particularly vulnerable tribal groups (PVTGs) that include the Abujmadia, Baiga, Kamar, Birhor and Hill Korva. These PVTGs continue to live in dire poverty, with high levels of impoverishment and malnutrition, and limited access to health and nutrition services, which in turn lead to high mortality rates. They practice largely subsistence agriculture and depend on forests for their livelihood. Despite this diversity, tribal communities do have similarities, though broad generic ones. They are known to dwell in compact areas, follow a community way of living, in harmony with nature, and have a uniqueness of culture, distinctive customs, traditions and beliefs which are simple, direct and non-acquisitive by nature.

2.4. The Positives

Access to entitlements such as the MGNREGA and PDS seem to be delivered as per norms, and there does not seem to be any deliberate exclusion of SCs or STs. For example, of the number of households who received employment under MGNREGA in 2018-19, nearly 34 percent were tribal families and another 10 percent belonged to SC households, which is roughly in proportion to the share of these groups in the state's population. The access to PDS too seems to be universal, given the strides the state has made in efficiently distributing rice through its public distribution system.

Many of the northern and southern districts are rich in biodiversity in that they have high forest cover, access to minor forest produce (MFPs) that can be marketed and mineral resources. They also receive considerable policy attention as they are on the list of aspirational districts being tracked centrally by the NITI Aayog, Government of India¹⁷⁷. The government's attention to these districts (10 in total) and the rich mineral resources (which lead to high contributions to the District Mineral Fund) present an opportunity that CHIRAAG can leverage. The goal of the Aspirational Districts program is to effectively transform districts identified as very low on human development through convergence of all schemes, collaboration between all levels of government, and competition driven by regular monitoring (the NITI Aayog tracks delta or change rankings on a real time basis for each aspirational district through a data dashboard). These districts are evaluated regularly on 49 indicators spanning health and nutrition, education, agriculture and water resources, financial inclusion, skilling and basic infrastructure.

The forest fringe areas offer additional opportunities for capitalizing natural resources including rich biodiversity and intensifying production systems for year-round production of nutritive food for local consumption and distant wellness markets. Recently, the State government granted land rights (416,000) to individuals and communities under the Forest Rights Act (FRA)¹⁷⁸. While the Government is pursuing development of these lands, there are challenges of technical capacity, sustainability and effective community participation. With access to improved water management and other critical input support, the production systems in *Badi* (homestead farms) and FRA lands could be sustainably intensified and diversified to address local food and nutrition challenges and generate marketable surplus.

The spotlight on the aspirational districts has led to large investments in growth and human development related services from both the center and the state. For example, the Ministry of Agriculture, Government of India has along with the Small Farmers' Agribusiness Consortium, prepared an action plan for development of electronic National Agriculture Markets (e-NAM mandis) in some of the aspirational districts. There is a proposal for instance to develop an e-NAM mandi in Jagdalpur, Bastar that will provide real time information on trade and prices, allow for e-bidding and direct and transparent online payment, and also expand the reach of the market available for buying and selling agricultural commodities. Similarly, the Government of Chhattisgarh has declared 7 of the 10 aspirational districts that fall under the Bastar division as a high burden area for malnutrition, and has launched a Suposhit Bastar Abhiyan, which provides a comprehensive package of health care and counselling services to tackle malnutrition. The package includes free medical check-ups, free nutritious food for both mothers and their children, and free medicines and counselling. Severely malnourished children are referred to a Nutritional Rehabilitation Center (NRC) for a 14 day-stay.

Economy

In the past decade Chhattisgarh focussed on areas where it had historically lagged - development of physical and social infrastructure, administrative re-organization to bring governance closer to people, strengthening and expanding its development cadre to ensure

¹⁷⁷The Government of India has selected 115 of the most backward districts in India for what it calls the Transformation of Aspiration Districts Programme (TADP). The programme tracks 49 key development indicators for these districts on a monthly basis using a district dashboard. Districts are prodded and encouraged to first catch-up with the best district within their state, and subsequently aspire to become one of the best in the country, by competing with, and learning from others in the spirit of competitive & cooperative federalism.

¹⁷⁸As per the Forest Rights Act (FRA) provisions, tribal households living and traditionally been cultivating lands before the year 2005 need to be given individual land rights. The Government has so far received 890 thousand claims under this Act.

provision of basic services to all, improving service delivery by targeting key flagship programmes, creating an industry-friendly environment to attract the much needed private investments, fiscal consolidation, and initiatives aimed at winning back the confidence of some sections of society that had been alienated. This hard work has borne fruit- the 11th Plan period (2007-12) was marked by an impressive CAGR of 8.4 percent against a target of 8.6 percent for the plan period, fiscal deficit of under 2.8 percent, doubling of the plan size, sharp increase in per capita income and reduction in debt from 19.11 to 16 percent of GSDP between 2007 to 2011. During the year 2014-15 State GDP was 222284.81 Lacs Rupees which reached to 246932.64 Lacs rupees in the year 2015-16 with a CAGR of 9.98 %. During the same period the state per capita income grew at the rate of 8.43% from Rs. 86860 to Rs. 94862. Whereas for the same period the population growth rate was mere 1.58 % (Directorate of Economics & Statistics, Raipur, Chhattisgarh).

Large investments have been made for developing the physical and industrial infrastructure, but Chhattisgarh still falls short of the national averages. Road and rail infrastructure is one of the poorest among major States, which inhibits accelerated industrial development. Additional investments will be required for further improving them to boost the primary and secondary sectors. Chhattisgarh has vast mineral and natural resources, but compared to its potential the contribution to State's economy is barely significant. This is because most of these resources go out of the state as unprocessed raw material and their value addition takes place elsewhere. The sub-optimal use of its comparative advantage for local processing/manufacturing and thus creating wealth within the State will be a challenge to meet in the next plan.

Table 40 GDP in Chhattisgarh

S. No.	Groups of industry	2013-14	2014-15	2015-16
1	Crops	12.27	11.76	11.46
2	Livestock	1.59	1.58	1.67
3	Forestry	2.87	2.69	2.72
4	Fisheries	1.66	1.73	1.73
	Total Agriculture Sector	18.39	17.76	17.58
	Total Primary Sector	29.36	28.8	27.16
	Total Secondary Sector	36.47	37.06	37.62
	Servicers Sector	34.17	34.14	35.22
	Total	100	100	100
	GDP in lacs rupees	19528409	22228481	24693264
	Per person Income	77633	86860	94862
	Population '000	26624	27053	27490

Source: Directorate of Economics & Statistics, 2016-17, Raipur Chhattisgarh.

Details of Operational Holdings of Selected Blocks (2017-18)

S. No.	Districts	Block	Average land holding size (Ha.)	Number of Operational Holdings					Total
				Marginal	Small	Semi-Medium	Medium	Large	
1	Bastar	Bastar	1.71	9984.00	5366.00	4436.00	806.00	79.00	2771.00
2		Bakawand	1.46	9931.00	8870.00	0.00	019.00	868.00	2688.00
3	Bijapur	Bairamgarh	2.70	1402.00	2630.00	3698.00	229.00	821.00	9280.00
4		Bhopalpattnam	1.75	2267.00	2236.00	1625.00	491.00	41.00	6660.00
5	Kondagaon	Makdi	3.20	3045.00	3548.00	0.00	791.00	0.00	5384.00

6		Baderjpur	2.07	4831.64	5205.58	0.00	0.00	761.00	0798.22
7	Dantewada	Katekalyan	5.25	0.00	2647.00	661.00	289.00	97.00	3794.00
8		Dantewada	6.07	1237.00	709.00	84.00	346.00	340.00	5716.00
9	Kanker	Charama	1.38	10112.00	3974.00	2184.00	356.00	236.00	2362.00
10		Narharpur	1.42	5132.00	5890.00	6201.00	134.00	508.00	6865.00
11	Sukma	Sukma	3.40	2355.00	2192.00	2304.00	884.00	574.00	9409.00
12		Chhindgarh	3.35	3441.00	3032.00	3354.00	144.00	321.00	2792.00
13	Narayanpur	Narayanpur	5.10	2147.00	2763.00	0.00	0.00	984.00	3894.00
Total (Bastar Plateau) :-			2.99	6884.64	2062.58	24547.00	9989.00	3930.00	37413.22
14	Balrampur	Shankargarh	1.09	1500.00	5307.00	2235.00	1005.00	363.00	0410.00
15		Kusmi	0.92	3658.00	7964.00	2652.00	178.00	852.00	3304.00
16	Korea	Sonhat	1.36	4527.00	3051.00	0.00	0.00	149.00	0727.00
17		Bharatpur	0.00	5116.00	5114.00	1575.00	200.00	062.00	5067.00
18	Surguja	Mainpath	1.42	2733.00	4142.00	5742.00	101.00	651.00	9369.00
19		Lundra	1.38	2085.00	4027.00	7576.00	458.00	579.00	7725.00
20	Surajpur	Odgi	1.45	5947.00	4174.00	2907.00	322.00	50.00	4900.00
21		Pratappur	1.40	4210.00	5576.00	4117.00	474.00	112.00	6489.00
22	Jashpur	Manora	2.50	2937.00	5872.00	0.00	0.00	272.00	0081.00
23		Pathalgaon	1.76	13875	13957	0.00	0.00	392	8224.00
Total (Northern Hills) :-			1.33	8588.00	1184.00	26804.00	3238.00	1482.00	16296.00
24	Mungeli	Mungeli	1.50	6944.00	10089.00	0.00	0.00	648.00	2681.00
25	Balodabazar	Bilaigarh	1.20	1777.00	5556.00	5935.00	340.00	107.00	5515.00
Total (Chhattisgarh Plains) :-			1.35	8721.00	6645.00	5935.00	340.00	055.00	8196.00
Total :-			2.19	34193.64	39891.58	57286.00	9067.00	1467.00	91905.22

Source: - Department of Agriculture farmers welfare and Biotechnology, C.G.

Issues Raised by Different Groups on Project Interventions

Agriculture

S. No.	Activity	Sub-activity	Observations
1	Crop Diversification and sustainable intensification	Agro-Forestry	<p>Chhattisgarh Plains</p> <ul style="list-style-type: none"> • Poor status • Unplanned • Timber based <p>Northern Hills</p> <ul style="list-style-type: none"> • Moderate status • Natural forest trees including fruits <p>Bastar Plateau</p> <ul style="list-style-type: none"> • Good status • Natural forest trees • Unplanned fruit plantation crops mostly in badi
		Mixed Cropping	<p>Chhattisgarh Plains</p> <ul style="list-style-type: none"> • Poor status • Mostly found in rabi • Low productivity of mixed cropping in marginal land <p>Northern Hills</p> <ul style="list-style-type: none"> • Prevalent among farmers • Moderate yield • Rainfed condition <p>Bastar Plateau</p> <ul style="list-style-type: none"> • Mixed crop grown in badi • Livelihood support (diversified cropping)
		Organic Farming (improving PoPs)	<p>Chhattisgarh Plains</p> <ul style="list-style-type: none"> • Non existence • Least possibility <p>Northern Hills</p> <ul style="list-style-type: none"> • Scope of organic farming by default <p>Bastar Plateau</p> <ul style="list-style-type: none"> • Scope of organic farming by default
2	Seed Development to promote seed self-sufficiency	<ul style="list-style-type: none"> • Promoting Seed Self-Sufficiency and access to quality seed/planting materials 	<p>Chhattisgarh Plains</p> <ul style="list-style-type: none"> • Inadequate <p>Northern Hills</p> <ul style="list-style-type: none"> • Lack of seed self sufficiency especially in pulses and oilseeds <p>Bastar Plateau</p> <ul style="list-style-type: none"> • Lack of seed self sufficiency especially in pulses and oilseeds • Farming depends communities on public & Private sector for procuring seed & planting materials.
		<ul style="list-style-type: none"> • Support accreditation and certification agencies 	<p>Chhattisgarh Plains /Northern Hills/Bastar Plateau</p> <ul style="list-style-type: none"> • Lack of awareness about certified seeds
3	Integrated Farming Systems:	<ul style="list-style-type: none"> • Develop Vermicompost/ NADEP 	<p>Chhattisgarh Plains</p> <ul style="list-style-type: none"> • Non existent <p>Northern Hills</p> <ul style="list-style-type: none"> • Emerging stage <p>Bastar Plateau</p> <ul style="list-style-type: none"> • Emerging stage
4	Promoting Agri-Mechanization	<ul style="list-style-type: none"> • Establishing Custom Hiring Centre 	<p>Chhattisgarh Plains</p> <ul style="list-style-type: none"> • Rapid growth in mechanization especially for agriculture operation and transportation

			<p>Northern Hills</p> <ul style="list-style-type: none"> Moderate growth in mechanization especially for agriculture operation and transportation <p>Bastar Plateau</p> <ul style="list-style-type: none"> Emerging stage in mechanization
5	Value Chain Development	<ul style="list-style-type: none"> Developing Robust Infrastructure At least four primary and one secondary/tertiary value additions units at the Panchayat level 	<p>Chhattisgarh Plains</p> <p>In initial phase for few commodities (mushroom products, pickles, scented rice, poha)</p> <p>Northern Hills</p> <p>In initial phase for few commodities (scented rice, spices)</p> <p>Bastar Plateau</p> <p>In initial phase for few commodities (coarse cereals, spices)</p>
6	Agriculture Marketing	<ul style="list-style-type: none"> Developing market information Develop Aggregated Markets and three-tier market aggregation model 	<p>Chhattisgarh Plains</p> <p>Informal market Lack of Market aggregation Lesser MSP price Inadequate facilities in market</p> <p>Northern Hills</p> <p>Informal market Lack of market aggregation Lesser MSP price Poor infrastructure in markets</p> <p>Bastar Plateau</p> <p>Informal market Lack of market aggregation Lesser MSP price Poor infrastructure in markets</p>
7	Irrigation	<ul style="list-style-type: none"> Individual farm ponds and secondary storage structure Community and collective farm pond, percolation tank etc., tube well, bore well, restoration tanks, lifting devices 	<p>Chhattisgarh Plains</p> <p>Canal give life saving irrigation in Kharif only Area under irrigation through tube well is increasing Canal fed ponds (mostly seasonal) and tanks are utilized for life saving irrigation in Kharif</p> <p>Northern Hills</p> <p>Canal give life saving irrigation in Kharif only Area under irrigation through tube well is increasing Canal fed ponds (mostly seasonal) and tanks are utilized for life saving irrigation in Kharif</p> <p>Bastar Plateau</p> <p>Canal give life saving irrigation in Kharif only Area under irrigation through tube well is increasing Canal fed ponds(mostly seasonal) and tanks are utilized for life saving irrigation in Kharif Community irrigation was observed in river belts.</p>
8	ICT enabled services	<ul style="list-style-type: none"> Weather-based and crop-based advisory services 	<p>Chhattisgarh Plains /Northern Hills/Bastar Plateau</p> <p>Android based application is developed by IGKV which disseminates crop, weather and market advisories to farmers to some extent. Other agencies like deptt of agro meteorology news paper, TV, IFFCO kisan call centres etc. also provide weather and crop based advisory services.</p>

Horticulture

S. No.	Activity	Sub-activity	Observations
1	Badi Development	<ul style="list-style-type: none"> Supply of badi development kits to 	<p>Chhattisgarh Plains</p> <p>Badi area is utilized for construction of house.</p>

		the individual (kit composite vegetable)	Cattle grazing is one of the reasons for not growing the crops in badi Northern Hills Badi area is utilized for diversified crops (Livelihood crops) in some pockets. Bastar Plateau Most of the farmers have badi area which is utilized for growing vegetables, fruits, spices, tuber and medicinal plants.
2	Assured Irrigation Supply	<ul style="list-style-type: none"> Supply of gravitation drip irrigation system to the farmers 	Chhattisgarh Plains /Northern Hills/Bastar Plateau Mostly farmers are using drip irrigation system for vegetables crops through tube wells
3	Community Orchard Development	<ul style="list-style-type: none"> Land selection - On the government/fallow/or land allotted by the gram panchayat Supply of selected fruit, flower and forest crops 	Chhattisgarh Plains Common property resources are mostly encroached. little scope for community orchard development Northern Hills Common property resources is being utilized for community orchard development Bastar Plateau Abundant common property resources are available for community orchard development.
4	Agro forestry Plantation	<ul style="list-style-type: none"> Boundary plantation and low density block plantation 	Chhattisgarh Plains Farmers are not interested in plantation due to some legal problems Northern Hills Boundary plantation are in existence in some pockets Bastar Plateau Boundary plantation are in existence in some pockets
5	Seed Development	<ul style="list-style-type: none"> Open pollinated seed development for leafy vegetables Hybrid seed development for tuber crops Undertaking pilot for developing superior hybrid seed variants 	Chhattisgarh Plains Farmers are using hybrid seeds for vegetable crops provided by the private firms. Leafy vegetables are most nutritious which is grown by the farmers through OP seeds. Northern Hills Farmers are using hybrid seeds for vegetable crops provided by the private firms. Leafy vegetables are most nutritious which is grown by the farmers through OP seeds. Bastar Plateau Tuber crops are grown by the farmers. Seeds are available in IGKVV centres. Farmers are using hybrid seeds for vegetable crops provided by the private firms. Leafy vegetables are most nutritious which is grown by the farmers through OP seeds.
6	Developing floriculture with focus on marigold plantation	<ul style="list-style-type: none"> Promoting marigold plantation as catch crops Developing market linkages for cut flowers and garlands Tie-up with agro-processing units (flower oil extraction unit etc.) 	Chhattisgarh Plains /Northern Hills/Bastar Plateau Marigold is one of the prominent flowers grown by the farmers. Price fluctuations restrict the income Market linkage is very poor. Scope for value addition from flowers. Dominance of market by literate youths, Harvesting practices, Shortage of skilled labor& oil extraction units, Lack of investment to

			support/meet the product standard, Access to market
7	Infrastructure support for existing nurseries	<ul style="list-style-type: none"> Assessment and benchmarking 	Chhattisgarh Plains /Northern Hills/Bastar Plateau Private nurseries are growing rapidly for providing flower, fruit plants.

Live Stock

S. No.	Activity	Sub-activity	Observations
1	Poultry Development (will include small ruminants such as chicken, quail, duck, rabbit, pigeon, piggery)	<ul style="list-style-type: none"> Establishing Poultry Mother Units Establishing Mini Hatcheries 	Chhattisgarh Plains /Northern Hills/Bastar Plateau <ul style="list-style-type: none"> Local breed of poultry High Preference & Taste Highly Nutritious Unorganized for production. Specifically recognized community reared piggery farming in unorganized way. Quail, Rabbits, pigeons are catching from forest. Non-discriptive poultry in backyard. Small number local birds. (20-30 birds)
2	Goatery Development	<ul style="list-style-type: none"> Establishing Goat Farms Mission on protein Supplement 	Chhattisgarh Plains /Northern Hills/Bastar Plateau Local breed of goat, mainly for meat purpose Poor management Lack of marketing facilities and hence exploitation of middlemen <ul style="list-style-type: none"> Low yield Indigenes sector. Heavy parasitic loads.
3	Fodder Development	<ul style="list-style-type: none"> Establishment of Fodder Nurseries (to be managed by an agri-entrepreneur) Post-harvest value addition (Urea treatment of Fodder and Silage making demonstration) 	Chhattisgarh Plains /Northern Hills/Bastar Plateau <ul style="list-style-type: none"> Absence of inadequate quality fodder, Animals are left for open grazing, degrading the already stressed pastures, fallow lands and farm lands. Absence of silage and urea treated fodder
4	Strengthening the existing and establishing new milk routes	<ul style="list-style-type: none"> Infrastructure improvement of the existing milk route under CHIRAAG (existing in Mungeli) Establishing new milk routes across few of the selected blocks 	Chhattisgarh Plains /Northern Hills/Bastar Plateau <ul style="list-style-type: none"> Low marketable surplus milk. Non-existence of milk route/cooperative milk society in baster plateau and northern hills.
5	Infrastructure Development	<ul style="list-style-type: none"> Establishing of the primary processing centres for meat and poultry 	Chhattisgarh Plains /Northern Hills/Bastar Plateau Unorganized processing units at local level.

Fisheries

S. No.	Activity	Sub-activity	Observations
1	Increasing fish production and productivity	<ul style="list-style-type: none"> Individual/Community Pond Construction 	Chhattisgarh Plains /Northern Hills/Bastar Plateau <ul style="list-style-type: none"> Fish farming is commonly in fresh water. About 90 water bodies acquired for fish farming. High income generator especially to fishermen.

			<ul style="list-style-type: none"> • Major carps/exotic carps • Low yield. • Encroachment of water bodies. • Costly fish seed
2		• Renovation of Existing ponds	Chhattisgarh Plains /Northern Hills/Bastar Plateau Existing ponds are in degradable form
3		• Provide Inputs - Fish Feed and Seedlings to individual and community pond owners	Chhattisgarh Plains /Northern Hills/Bastar Plateau Lack of improved fish seedlings and feeds
4		• Fish Feed Production Set up	Chhattisgarh Plains /Northern Hills/Bastar Plateau Non existent

Value Addition and Marketing

S. No.	Activity	Sub-activity	Observations
1	Demand Supply Analysis (DSA)	Study	
2	Value Chain Analysis (VCA)	Study	
3	Formation of PGs	Formation of PGs	Chhattisgarh Plains /Northern Hills/Bastar Plateau Commodity specific producer groups have been found in the state Most of them are not registered under cooperatives.
4	Formation of FPOs	Formation of FPOs	Chhattisgarh Plains /Northern Hills/Bastar Plateau Commodity specific FPOs have been found in the state Most of them are registered as cooperative. Very few FPOs are registered in company act.
5	Establishment of primary processing centres	Sorting, grading, packing, short duration storage	Chhattisgarh Plains /Northern Hills/Bastar Plateau Lack of storage facilities, Lack of knowledge of grading and packaging. Existence of traditional storage structures.
6	Establishment of secondary and tertiary level processing centres	Pulp extraction, drying, powders, juices, pickles, etc	Chhattisgarh Plains /Northern Hills/Bastar Plateau Few nos. of secondary and tertiary processing units are in existence in the state and Unorganized

Environment and Social Commitment Plan

MATERIAL MEASURES AND ACTIONS		TIMEFRAME	RESPONSIBLE ENTITY/AUTHORITY
MONITORING AND REPORTING			
A	<p>REGULAR REPORTING: Prepare and submit regular monitoring reports on the environmental, social, health and safety (ESHS) performance of the Project, including but not limited to the implementation of the ESCP, status of preparation and implementation of E&S documents required under the ESCP, stakeholder engagement activities, and functioning of the grievance mechanisms.</p>	<i>Quarterly not later than 15 days from end of a calendar quarter</i>	PMU, CHIRAAG Funding from the project budget
B	An independent Environmental and Social Audit at mid-term and End term	At the end of third year for mid-term audit and end of fifth year for end term audit (depending on project implementation timeline)	PMU, CHIRAAG
C	<p>INCIDENTS AND ACCIDENTS Promptly notify the Bank any incident or accident related or having an impact on the Project which has, or is likely to have, a significant adverse effect on the environment, tangible cultural heritage, the affected communities, the public or workers. Provide sufficient detail regarding the incident or accident, indicating immediate measures taken to address it, and include information provided by any contractor and supervising entity. Subsequently, as per the Bank's request, prepare a report on the incident or accident and propose any measures to prevent its recurrence</p>	<i>Promptly and no later than twenty-four hours after taking notice of the Project-related incident or accident.</i>	PMU, CHIRAAG
C	CONTRACTORS MONTHLY REPORTS		
ESS 1: ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS			

MATERIAL MEASURES AND ACTIONS		TIMEFRAME	RESPONSIBLE ENTITY/AUTHORITY
1.1	<p>ORGANIZATIONAL STRUCTURE</p> <p>Establish an organizational structure with qualified staff and resources to support management of E&S risks including agreed environmental specialist, social specialist, Tribal Development focal point as well as short term consultants (whenever required) within the PMU at state level, who will support, monitor and report on the implementation/compliance of the ESMF and other relevant environmental and social documents. Maintain the organizational structure as necessary throughout Project implementation. Training and capacity building of local staff shall be undertaken as per the ESMF.</p>	<i>Mobilized no later than 90 days after project effectiveness; thereafter maintained throughout implementation</i>	DoA, GoC
1.2	<p>ENVIRONMENTAL AND SOCIAL ASSESSMENT</p> <p>Implement the provisions included in the specific environmental and social documents, as required from time to time and report on their implementation progress.</p>	<i>ESMF has been prepared. Pest Management Plan, Nutrient Management Plan and Biodiversity Management Plans, and a generic construction Management Plan need to be prepared within 120 days from project effectiveness.</i>	DoA, GoC
1.3	<p>MANAGEMENT TOOLS AND INSTRUMENTS</p> <p>Preparation of sub-project specific ESIA/ESMPs</p>	<i>Prior to commencement of bidding process</i>	DOA, GoC
1.4	<p>MANAGEMENT OF CONTRACTORS</p> <p>Incorporate the relevant aspects of this ESCP, and the E&S documents required under this ESCP including, inter alia, any environmental and social management plans or other instruments, ESS2 requirements, and any other required ESHS measures, the procurement documents and contracts with contractors and supervising firms. Thereafter, ensure that contractors and supervising firms comply with the ESHS specifications of their respective contracts.</p>	<i>Before launching of the bidding process</i>	DoA, GoC
ESS 2: LABOR AND WORKING CONDITIONS			
2.1	Labour Management Procedure is prepared in accordance with the ESS2.	<i>Before the commencement of the bidding process</i>	DoA, GoC
2.2	Ensure that Contractor prepares a Labour Management Plan (LMP) consistent with ESS2 including GRM for project workers is prepared.	<i>Within 30 days of Contractor's mobilization</i>	DoA, GoC

MATERIAL MEASURES AND ACTIONS		TIMEFRAME	RESPONSIBLE ENTITY/AUTHORITY
2.2 a	Workers' camp management plan prepared by contractor in accordance with LMP	<i>Within 30 days of Contractor's mobilization</i>	DoA, GoC
2.2 b	Ensure that sub-projects includes an occupational, health and safety (OHS) measures specified in the ESMP	<i>Within 60 days of Contractor's mobilization</i>	DoA, GoC
2.2 c	Code of conduct prepared by the contractor as part of LMP and signed by all laborers and staff	<i>Within 60 days of Contractor's mobilization</i>	DoA, GoC
2.3	Sub project specific ESIA includes an occupational, health and safety (OHS) measures as part of Contractor's ESMP.	<i>Before the commencement of the bidding process</i>	DoA, GoC
ESS 3: RESOURCE EFFICIENCY AND POLLUTION PREVENTION AND MANAGEMENT			
3.1	Finalize (i) Pest Management Plan (PMP) and (ii) Nutrient Management Plan (NMP) and packages for commodities selected under the project in a manner acceptable to the Bank. The PMP shall cover capacity building measures and training (on safe pesticide use and integrated pest management), storage and disposal of pesticides and other agrochemicals, PPEs required, clear implementation arrangement and timeline, monitoring, supervision and reporting provision,	<i>PMP and NMP templates included in ESMF Finalize within 120 days from project effectiveness</i>	DoA, GoC
3.2	Prepare 'Good Aquaculture Practice' guidelines in a manner acceptable to the Bank covering training, monitoring, supervision and reporting provision, disease and waste management measures, among others	<i>Within 120 days from project effectiveness</i>	
3.3	Contractor to prepare a sub-project specific ESMP for specific construction sites, where required, as per ESMF in a manner acceptable to the Bank.	<i>Before start of the construction work</i>	Contractor DoA, GoC

Chance Find Procedure

To be used for the application of The World Bank’s Environment and Social Standard 8: Cultural Heritage.

What is a Chance Find?

A chance find is any unanticipated discovery or recognition of cultural heritage. Most often, chance finds occur during the construction phase of a project. Such finds include, for example, the discovery of a single artifact, an artifact indicating the presence of a buried archaeological site, human remains, fossilized plant or animal remains or animal tracks, or a natural object or soil feature that appears to indicate the presence of archaeological material

Important Notes to Consider

- These procedures must be included as standard provisions in construction contracts for Inclusion in the Technical Specifications for Contracts.
- During project supervision, the Site Engineer shall monitor the suggested steps/regulations relating to the treatment of any chance find encountered at construction site.
- Relevant findings will be recorded in the Construction Progress Reports and PMU will include these in the regular Progress Reports
- The World Bank Implementation Supervision Reports (ISRs), and Implementation Completion Reports (ICRs) will assess the overall effectiveness of the project’s cultural property mitigation, management, and activities, as appropriate.

1.	<i>Before Construction Begins</i>	
1/a	An advance survey and monitoring of ground-disturbing activities, especially in locations with a high likelihood of cultural heritage to be undertaken	Site Engineer Contractor
1/b	Prepare a brief report on the advance survey	Site Engineer Contractor
1/c	PMU reviews and clears for starting construction contract involving digging and other earthworks	PMU
2.	<i>In the event of a chance find</i>	
2/a	Contractor to inform PMU	Contractor
2/b	Stop Work Notice to contractor for preventing any construction activities in the area of the chance find	PMU
2/c	Delineate the discovered site or area	Contractor/PMU
2/d	Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities take over.	Contractor/PMU
2/e	Inform a competent national entity/authority (For India: Archeological Survey of India)	PMU
2/f	Only the competent national entity/authority shall be responsible for significant movable and immovable cultural property	Competent National Authority
2/g	Facilitate a preliminary survey/evaluation of the site by the competent national authority	PMU and National Competent Authority
2/h	Ensure that decisions on how to handle the finding be taken by the national competent authorities. This could include changes in the layout (such as when the finding is an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage.	PMU and National Competent Authority
2/i	Implementation for the decision concerning the management of the finding shall be communicated in writing by the national competent authority	Competent National Authority

2/j	Construction work will resume only after authorization is given by the national competent authority	Competent National Authority
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Draft PEST MANAGEMENT PLAN (to be finalized within 120 days of project effectiveness)

Although the use of pesticides in Chhattisgarh is relatively low and below the national average, it would be critical to ensure that growth of the agriculture and allied sector doesn't lead to increased use of pesticides. This PMP will help ensure that the growth trajectory of the agriculture and allied sector in the state remains environment friendly, doesn't lead to pollution of natural habitats and groundwater resources and remains competitive in supply safe food to consumers.

Section 1 Key pests and pesticides being used

Key Pest	Season/crop of attack	Intensity of attack (low/med/high)	Pesticide used against	Quantity of pesticide used

Section 2 Integrated Pest Management (IPM)

The key approach for pest management is IPM, involving cultural, physical, biological and chemical approaches, following the principles of economic threshold limit (ETL). Ranging from the use of seed pre-treatment to fixing of bird perches on the farmland, a range of low-cost and easily implementable IPM approaches would be deployed. Several available and *off the shelf* IPM package will be promoted in project areas.

Objectives and Components of IPM

Key crops/livestock for which IPM package available	IPM package cost	Key recommendations	Area currently covered under IPM (crop-wise)	Potential for scaling up area under IPM

Section 3 Project Indicators and Targets

Indicator	Target	Timeline
Awareness building	No. of blocks covered	Add year-wise or month-wise targets
No. of IPM demonstrations	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3
No. of Farmers/Farmer Groups covered	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3
Area to be brought under IPM	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3

Trainings on IPM delivered	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3
Use of organic inputs/bio-fertilizers	Give total project target	List year-wise targets until project end
Reduction in use of fertilizers	Starting from year 3	Year 3 onwards
Reduction in use of pesticides	Starting from year 3	Year 3 onwards

Section 4 Capacity Building and Training Requirements

List the available training programs for IPM for different levels – farmers, farm labors, women, agricultural officers, extension workers etc.

Activity	Years					Action Points
	1	2	3	4	5	
Training of Agri./Hort/AH staff in IPM (project and line dept.)						Training at IGKV/KVK (which ones? And when?)
Training of CRP/paravets in IPM						
Development of technical brochures for use by farmers						
Awareness programs for farmers						
Developing lead farmers for demonstration and promoting adoption of IPM						
Training on safe use, handling and disposal of pesticides						
Soil testing (baseline) and biannual						
Supply of vermi-compost and other organic inputs						
Legume plantations for soil nitrogen						
Others....						
Others....						

Section 5 Pest Surveillance Strategy

Suggest how pests in the state would be put under surveillance (discuss if there is an existing strategy and whether the project could support it); suggest a roadmap/action steps to build a surveillance strategy

Section 6 Good Practice Guidance on Procurement, Transport, Storage, Handling, Applying and Disposal of Pesticides

Draft NUTRIENT MANAGEMENT PLAN (to be finalized within 120 days of project effectiveness)

Although the use of fertilizers in Chhattisgarh is relatively low and below the national average, it would be critical to ensure that growth of the agriculture and allied sector doesn't lead to increased use of fertilizers. This NMP will help ensure that the growth trajectory of the agriculture and allied sector in the state remains environment friendly, doesn't lead to pollution of natural habitats and groundwater resources and remains competitive in supply safe food to consumers.

Section 1 Current consumption of fertilizers

	<i>Inorganic (kg/ha)</i>	<i>Organic (kg/ha)</i>	<i>Bio-fertilizers (kg/ha)</i>
<i>N</i>			
<i>P</i>			
<i>K</i>			

Section 2. Current practices in application of fertilizers

<i>Inorganic</i>	
<i>Organic</i>	
<i>Bio-fertilizers</i>	

Section 3 Integrated Nutrient Management (IPM)

Exclusive dependency on chemical fertilizers only can lead to several problems – decline in soil health, pollution from excess nitrogen in groundwater pollution, run-offs, low productivity. The main objective of integrated nutrient management is to improve and maintain soil fertility, plan nutrient supply and land productivity, and simultaneously reduce environmental degradation. INM integrates various soil, nutrient, water, crop, and vegetation management practices for a particular cropping and farming system.

Crops	Recommended practices	Area currently covered under INM practices	Potential for scaling up area under INM practices
	<ul style="list-style-type: none"> - Mulching - Conservation tillage - Crop rotation - Organic manuring - Biofertilizers for rhizobial N-fixation - Efficient application methods (direct incorporation into soil rather than broadcasting) - Legume plantation - Others - Others - 		

Section 3 Project Indicators and Targets

Indicator	Target	Timeline
Awareness building	No. of blocks covered	Add year-wise or month-wise targets
No. of INM demonstrations	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3
No. of Farmers/Farmer Groups covered	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3
Area to be brought under INM	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3
Trainings on INM delivered	Year 1 Year 2 Year 3	Year 1 Year 2 Year 3
Use of organic inputs/bio-fertilizers	Give total project target	List year-wise targets until project end
Reduction in use of fertilizers	Starting from year 3	Year 3 onwards
Reduction in use of pesticides	Starting from year 3	Year 3 onwards

Section 4 Capacity Building and Training Requirements

List the available training programs for INM for different levels – farmers, farm labors, women, agricultural officers, extension workers etc.

Activity	Years					Action Points
	1	2	3	4	5	
Training of Agri./Hort/AH staff in INM (project and line dept.)						Training at IGKV/KVK (which ones? And when?)
Training of CRP/paravets in INM						
Development of technical brochures for use by farmers						
Awareness programs for farmers						
Developing lead farmers for demonstration and promoting adoption of INM						
Soil testing (baseline) and biannual						
Supply of vermi-compost and other organic inputs						
Legume plantations for soil nitrogen						
Others....						
Others....						

PHOTOS



Goat rearing at village – Kodawani, Block – Mungeli



Live Stock rearing at village – Kodawani, Block –Mungeli



Local Hat Bazar (Bakawand Block)



FGD with Women groups at Bilaigarh Block

India

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG) Design Report

Annex 7: Mainstreaming themes – Eligibility criteria checklist

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

Mainstreaming themes – Eligibility criteria checklist

	<input type="checkbox"/> Gender transformational	<input type="checkbox"/> Youth sensitive	<input type="checkbox"/> Nutrition sensitive	<input checked="" type="checkbox"/> Climate finance						
Situation analysis	<input type="checkbox"/> National gender policies, strategies and actors <input type="checkbox"/> Gender roles and exclusion/discrimination <input type="checkbox"/> Key livelihood problems and opportunities, by gender	<input type="checkbox"/> National youth policies, strategies and actors <input type="checkbox"/> Main youth groups <input type="checkbox"/> Challenges and opportunities by youth group	<input checked="" type="checkbox"/> National nutrition policies, strategies and actors <input checked="" type="checkbox"/> Key nutrition problems and underlying causes, by group <input checked="" type="checkbox"/> Nutritionally vulnerable beneficiaries, by group							
Theory of change	<input type="checkbox"/> Gender policy objectives (empowerment, voice, workload) <input type="checkbox"/> Gender transformative pathways <input type="checkbox"/> Policy engagement on GEWE	<input type="checkbox"/> Pathways to youth socioeconomic empowerment <input type="checkbox"/> Youth employment included in project objectives/activities	<input checked="" type="checkbox"/> Nutrition pathways <input checked="" type="checkbox"/> Causal linkage between problems, outcomes and impacts							
Logframe indicators	<input type="checkbox"/> Outreach disaggregated by sex <input type="checkbox"/> Women are > 40% of outreach beneficiaries <ul style="list-style-type: none"> • IFAD empowerment index (IE.2.1) 	<input type="checkbox"/> Outreach disaggregated by sex and youth	<input checked="" type="checkbox"/> Outreach disaggregated by sex and youth, and IPs (if appropriate) <ul style="list-style-type: none"> • Output level CIs <ul style="list-style-type: none"> ◦ CI 1.1.8 Mandatory Outcome level CIs (at least one of below) <ul style="list-style-type: none"> ◦ CI 1.2.8 ◦ CI 1.2.9 							
Human and financial resources	<input type="checkbox"/> Staff with gender TORs <input type="checkbox"/> Funds for gender activities <input type="checkbox"/> Funds for IFAD empowerment index in M&E budget	<input type="checkbox"/> Staff with youth TORs <input type="checkbox"/> Funds for youth activities	<input checked="" type="checkbox"/> Staff or partner with nutrition TORs <input checked="" type="checkbox"/> Funds for nutrition activities	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">IFAD Adaptation Finance</td> <td style="text-align: right;">\$42,168,000</td> </tr> <tr> <td>IFAD Mitigation Finance</td> <td style="text-align: right;">\$3,760,000</td> </tr> <tr> <td>Total IFAD Climate-focused Finance</td> <td style="text-align: right;">\$45,928,000</td> </tr> </table>	IFAD Adaptation Finance	\$42,168,000	IFAD Mitigation Finance	\$3,760,000	Total IFAD Climate-focused Finance	\$45,928,000
IFAD Adaptation Finance	\$42,168,000									
IFAD Mitigation Finance	\$3,760,000									
Total IFAD Climate-focused Finance	\$45,928,000									

<p>ECG Remarks</p>	<p>Gender</p> <p>Nutrition</p> <p>Through a comprehensive situation analysis, the Project has identified the underlying problems of malnutrition and micronutrient deficiencies in the northern and southern tribal-majority region of Chhattisgarh including national policies and institutional framework on nutrition. Beneficiaries that are most vulnerable to malnutrition and micronutrient deficiencies have been identified, disaggregated by socio-economic strata in line with the nutrition challenges they are facing. Gaps in existing food and agriculture systems contribute to undernutrition and micronutrient deficiencies in Chhattisgarh. As such, to ensure that the Project meets its development objective, standalone nutrition-sensitive components and activities have been designed to address the problems of malnutrition and micronutrient deficiencies (Components 1: 1.2, 2: 2.2, and 3: 3.1) and adequate resources to implement the activities have been allocated. The logframe includes both the output and outcome core indicators which will be monitored throughout the project implementation period. IFAD will establish a dedicated unit within the Project Implementation Unit to guide and advise on nutrition aspects of the Project.</p> <p>Youth</p> <p><input type="checkbox"/> No social inclusion themes</p>
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India

**Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)
Design Report**

Annex: Stakeholder Engagement Plan (SEP)

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

GOVERNMENT OF CHHATTISGARH

Stakeholder Engagement Plan

09 February 2020

– Revised April 7, 2020

-Revised April 23, 2020

**CHHATTISGARH INCLUSIVE RURAL ACCELERATED AGRICULTURE GROWTH
PROJECT**

Department of Agriculture

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CHIRAAG
Stakeholder Engagement Plan
Draft

Executive Summary

1. The Chhattisgarh Agriculture Department is the implementing agency for the World Bank supported, Chhattisgarh Inclusive Rural and Agriculture Accelerated Growth (CHIRAAG) Project, henceforth the Project. The Project Development Objective (PDO) is to improve the nutritional intake and to enhance and diversify sources of income of households in select tribal-dominated areas of Chhattisgarh. The sub-objective to ultimately achieve the PDO is to increase the productivity, profitability and market access of small farmers/ marginal farmers, landless labourers by promoting and capitalizing on village resources Narwa (rivulets), Garuwa (livestock), Ghuruwa (farm waste), and Badi (backyard farming) / in the selected tribal-dominated locations of Chhattisgarh.
2. The Project has 3 components: Component 1 Nutrition-supportive, climate resilient and diversified production systems; Component 2 : Value addition and access to market and Component 3: Community Empowerment (for better coordination with State and markets) and Component 4: Monitoring and Evaluation, ICT, and Knowledge Management. The Project is proposed to be implemented in 25 Blocks in 18 Districts of the State.
3. As part of the World Bank's Environmental and Social Framework (ESF) and implementation of the Environmental and Social Standards, especially ESS 10 on Stakeholder Engagement and Information Disclosure, CG Agriculture Department has prepared a Stakeholder Engagement Plan (SEP). The main objectives of the SEP are to adopt a systematic, transparent and participatory approach to stakeholder engagement and information disclosure, and maintenance of positive stakeholder relationships, monitoring of stakeholder feedback and implementation of an accessible and responsive grievance redressal mechanism. The SEP also aims to facilitate stakeholder feedback and engagement on project design and implementation, including on identification and mitigation of environmental and social risks and impacts.
4. The SEP will act like a guiding tool and framework for managing communications and engagement between Chhattisgarh Agriculture Department and its stakeholders for the Project. The SEP has been adapted to the nature and scale of the project and its potential environment and social risks and impacts. The SEP takes into account the existing institutional and regulatory frameworks/acts of the Government of India (GOI) and the Government of Chhattisgarh (GoC) as well as the requirements of the Environmental and Social Framework (ESF), 2016 of World Bank.
5. The SEP includes multiple channels and mechanisms of engaging with the stakeholders, including Publications, website, telephone, public consultations and meetings, participatory assessments and surveys, participatory planning and existing channels of citizen's engagement of the GoC. Differentiated measures will be adopted to engage with vulnerable and disadvantaged households, including focus group discussions, inclusive beneficiary identification in the GP, inclusion amongst beneficiary groups, and lower thresholds for cost sharing for individual benefits. Other project-related

information will be shared with the primary stakeholders in locally understood languages where necessary. All ESS plans and documents will be disclosed on the project's websites.

6. The Environment and Social Assessment (ESA) and ESMF preparation exercise conducted by the Department of Agriculture, Government of CG involved participatory approaches, especially consultations, public meetings, focus group discussions, and in-depth interviews with the key project stakeholders. This included potential project beneficiaries and residents in project GPs, farmers, Gram Panchayat representatives and officials, village leaders, traditional tribal leaders for PVTGs as well as Women's self-help groups. These consultations also included disadvantaged and vulnerable population groups, especially landless and marginal farmers, women headed households, scheduled caste households, tribal households. Meetings and Consultations were also held with the state departments of Forests, Tribal Welfare, Agriculture, Animal Husbandry and Fisheries, Animal Husbandry, Rural Development and Department of Environment, to understand the scope of their participation and sectoral interventions under the project, and the potential social and environmental risks and issues involved.

7. The SEP identifies the main stakeholders of the projects as: i) *Positively affected Project Beneficiaries*, mainly small and marginal farmers, Gram Panchayats, farmers groups/cooperatives, SCs and STs, and women's groups; ii) *Disadvantaged and Vulnerable Households*, such as landless and marginal farmers, PVTGs, scheduled castes households, scheduled tribes, women headed households, disabled households as well as households designated below the poverty line identified through SECC; iii) *Potentially negatively affected groups*, such as households facing temporary access/use restrictions from new grazing pastures, fodder plots and plantations; and iv) *Other Interested stakeholders* such as line departments of Animal Husbandry, Horticulture, Rural Development and Panchayati Raj, and Science and Technology. Private partners involved in agribusiness and value chain development as well as NGOs associated with forestry, agriculture, horticulture, animal husbandry, natural resource management and rural development are also important stakeholders of the project.

8. The SEP includes a range of interventions to engage with the key stakeholders, throughout the project implementation period. These include participatory and inclusive process of preparing the GPRMPs, capacity building of community user groups, tracking inclusion of vulnerable groups, disclosure of project documentation, SEPs and the ESF plans on project's websites, **monthly** meetings with the GPs, **quarterly** review meetings at the District level, **monthly** updates from the Social Extension Officers, and training of community organizations, extension staff and GP officials and representatives. Project Information and updates will be shared through websites, newsletters and other stakeholder engagement events on **quarterly basis**.

9. The Department of Agriculture GoCG, project management unit (PMU) will be responsible for implementing the SEP through the Environment and Social Experts at the State Level, the District Project Officer at the Districts, and agriculture extension officers, KVKs who will be directly engaging with the key stakeholders. Local level project implementation units will be supported to effectively engage with primary stakeholders throughout project implementation. The Project will establish a Grievance Redress Mechanism (GRM) with the aim to respond to queries or clarifications or complaints about the project and address complaints/concerns and grievances of the stakeholders. The GRM will focus on corrective actions that can be implemented quickly and at a relatively low cost to resolve

identified implementation concerns, GRM will also serve as a channel for early warning, helping to target supervision to where it is most needed and identify systemic issues.

10. The project will be conducting an external review of the ESF implementation progress and impacts, including the implementation of the SEP. External agencies/resource persons will be engaged to carry out this audit/review in the 3rd and 5th year of the project. Though Department of Agriculture is overall responsible for implementation of SEP, it will be implemented through block level Project Implementation Unit (PIU). The District level Project Coordination Unit will be engaged in monitoring and reporting on SEP implementation. The SEP will be **annually** revised and updated as necessary in the course of project implementation, to ensure that the information presented is consistent and is the most recent, and that the identified stakeholders and methods of engagement remain appropriate and effective in relation to the project context and specific stages of the implementation. Any major changes to the project related activities and to its schedule will be duly reflected in the revised SEP and publicly disclosed so that stakeholders are well informed, especially on issues that directly affect them.

1.0 Introduction and Project Description

1.1 Introduction

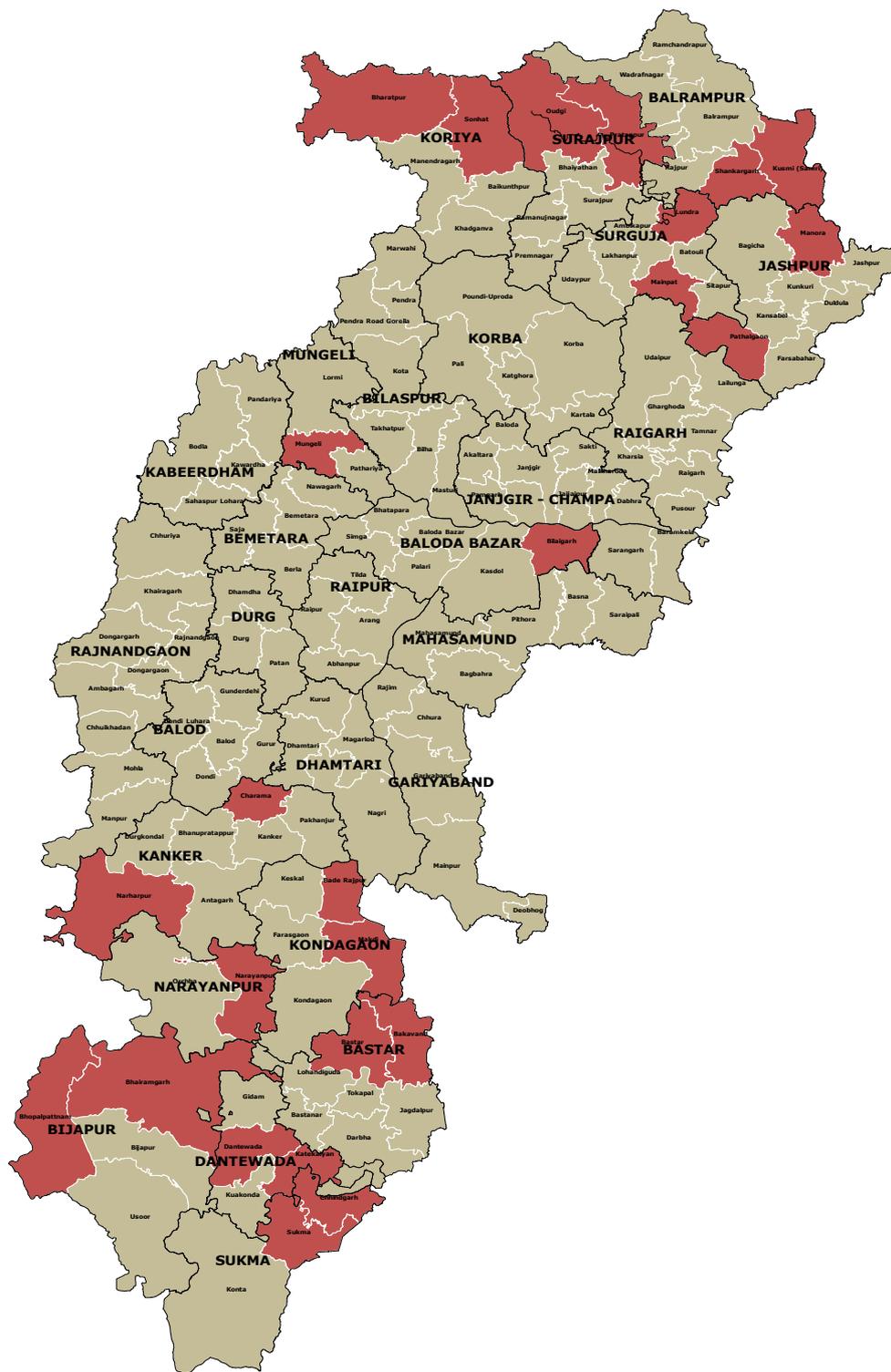
1. The Government of Chhattisgarh (GoC) is preparing the Integrated Project entitled Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth (CHIRAAG) for 25 Blocks in 18 Districts of the State for financing from the World Bank. It is a rural transformative project that is premised on the development and optimum utilization of traditional village resources of production through:

- Rivulet regeneration and conservation (Narwa);
- Livestock management and increase production (Garwa);
- Bio-composting (Ghuruwa);
- Nutritional and income-generating support activities through backyard fruits and vegetable (Badi);

to transform the village level economy from subsistence level to semi-subsistence farming and then to commercial production.

2. The proposed Project is to be implemented in 25 Blocks of 18 Districts of Chhattisgarh. The Project will cover almost 30% of the tribal population of the state. Out of the total state-tribal population, about 2.3% of them are classified as PVTGs and these include; Kamar, Baiga, Pahari Korwa, Birhor, Abujhmadia.

Figure 1: Map of State of Chhattisgarh



1.2 Project Description

3. The objective of the project is to improve the nutritional intake and to enhance and diversify sources of income of households in select tribal-dominated areas of Chhattisgarh. The sub-objective to ultimately achieve the PDO is to increase the productivity, profitability and market access of small farmers/ marginal farmers, landless labourers by promoting and capitalizing on village resources Narwa

(rivulets), Garuwa (livestock), Ghuruwa (farm waste), and Badi (backyard farming) / in the selected tribal-dominated locations of Chhattisgarh.

4. The two main fundamental pillars of the project are Income and Nutrition. The income for the target farmers/producers is expected to increase through the combination of:

- Diversification and sustainable intensification of production systems
 - developing integrated farming systems – agriculture-horticulture-agroforestry-fishery-livestock, other allied sub-sectors like sericulture, apiculture, etc.), which is more aligned with market demand;
- Productivity increase through infusing modern technology and improving resource infrastructure (water management irrigation/soil health etc.);
- Value addition through post-harvest measures and processing; and
- Better price terms through improved access to local-national-export markets.

5. On the other hand, Nutrition for the targeted population is expected to be increased through a combination of the following:

- Natural Resource Assessment of the HHs to ensure that each of the targeted HHs should practice one or the other activities: Home-stead food production (for instance pulse and millet plantation, backyard poultry), Nutrition Kitchen Garden (Badi), Bio-floc for fisheries and such other activities;
- Facilitating an increase in the production of nutrient-dense crops and small-scale livestock (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and biofortified crops);
- Sensitization towards nutrition information and food recipes to increase the appreciation and use of local nutritious biodiversity to improve dietary diversity;
- Improve processing, storage and preservation to retain nutritional value, shelf-life, and food safety, to reduce the seasonality of food insecurity and post-harvest losses, and to make healthy foods convenient to prepare for domestic consumption;
- Promoting SHGs to develop local nutritionally rich snacks for distribution to the Angadwadi Centers and Schools;

6. Overall, the project is expected to directly impact three lakh producer households. Indirectly, another one lakh households will be benefitting through skill development and job creation. The project is also expected to impact value chain actors viz., traders, processors, warehouse operators, marketers etc. The development of agriculture and allied sectors will transform the State's rural economy and quality of life and enhance State's contribution to national food security.

7. The project is organized into four main components: Component 1: Strengthening State Capacity and Empowering Community Institutions; Component 2: Nutrition-Supportive, Climate Resilient and Diversified Production Systems; Component 3: Value Addition and Market Access; Component 4: Project management, monitoring and evaluation, and knowledge sharing.

Component 1: Empowering Community

8. The key objectives of this component are: a) socio-economic empowerment of community and household capacity to plan, implement, and monitor development investments; b) strengthen

community institutions towards effective management of natural resources, community and private assets, acquire new skills and capacities for value addition and access to profitable markets; and c) improving household diet diversity and promoting positive nutrition practices.

Component 2: Nutrition-supportive, resilient production systems

9. The project component aims to suitably leverage natural resources as a foundation for developing sustainable production systems which are more diversified, nutritive and productive, more resilient to climate shocks. As part of integrated farming system, it will aim to work with a range of commodities that will ensure HH nutrition security and find increased demand in local and wellness markets.

Component 3: Value addition and access to market

10. The objective of this component is to increase availability on nutritive foods for the HH and the local community and enable the producers to realize higher income through value addition and accessing profitable markets. This will be achieved through promotion of value addition primarily food preservation, storage etc. at the community and HH levels and creating producer collectives for aggregation, primary processing, strengthening local market infrastructure and strengthening community capacities.

Component 4: Project management, monitoring & evaluation and knowledge management

11. The objective of this component is to support the effective implementation of the project by laying out suitable implementation structures guided and strengthened by ICT-enabled monitoring, knowledge management and decision support systems. Partnerships and implementation arrangements with external agencies (technical /implementation/knowledge etc.) with proven expertise in their competency areas shall be utilized to enhance the quality of planning, implementation and monitoring under the project. The project shall have a multi-disciplinary, cross-functional and multi-agency project management unit (PMU) at the State level supported by two regional Project Implementation Units (PIUs - one in the southern and the other in the northern region of the State). The two regional PIUs would drive project implementation in their assigned regions but would be guided by the State-level PMU based on appropriate review and steering mechanisms. The State-level PMU shall also try to leverage knowledge partnerships with national/international agencies and Public-Private Community Partnership (PPCP) platform for enabling active participation from other key stakeholders in the project ecosystem. This shall help in not only ensuring effective multi-stakeholder participation but in also helping the State to mobilize additional financing support from other key stakeholders (e.g. Corporate Social Responsibility agencies).

2.0 Purpose of Stakeholder Engagement Plan

12. The main objectives of the SEP are to adopt a systematic, transparent and participatory approach to stakeholder engagement and information disclosure, and maintenance of positive stakeholder relationships, monitoring of stakeholder feedback and implementation of an accessible and responsive grievance redressal mechanism. The SEP also aims to facilitate stakeholder feedback and

engagement on project design and implementation, including on identification and mitigation of environmental and social risks and impacts.

13. Project is required to engage with multiple and varied set of stakeholders for different activities under the project components. This document, forms part of the environmental and social assessment documentation. This SEP, outlines the general principles and collaborative strategy to identify stakeholders for all components under the Project, identify appropriate modes of engagement and prepare plans for engagement and meaningful consultation throughout the project cycle while ensuring transparency. The goal of this SEP is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project beneficiaries and other stakeholders in a timely manner and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence Project decisions. The SEP will act as a guiding tool and framework for managing communications and engagement between HPFD and its stakeholders for the Project. The SEP has been adapted to the nature and scale of the project and its potential environment and social risks and impacts. The SEP takes into account the existing institutional and regulatory frameworks/acts of the Government of India (GOI) and the Government of Chhattisgarh (GoC) as well as the requirements of the Environmental and Social Framework (ESF), 2016 of World Bank.

14. The SEP includes multiple channels and mechanisms of engaging with the stakeholders, including Publications, website, telephone, public consultations and meetings, participatory assessments and surveys, participatory planning and existing channels of citizen’s engagement of the GoC. Differentiated measures will be adopted to engage with vulnerable and disadvantaged households, including focus group discussions, inclusive beneficiary identification in the GP, inclusion amongst beneficiary groups, and lower thresholds for cost sharing for individual benefits. Other project-related information will be shared with the primary stakeholders in locally understood languages where necessary. All ESS plans and documents will be disclosed on the project’s websites.

3.0 National and State Legal and Regulatory Framework

15. This SEP considers the existing institutional and regulatory framework within the context of the National and State legal instruments as well as the safeguard compliance requirements of Environmental and Social Framework (ESF), 2016 of the World Bank.

3.1 National and State Acts and Policies:

16. The relevant National Acts and or Policies are described in table below.

Table 1: Relevant Acts and Policies

Acts/Rules/Policy	Explanation	Relevance to the Project
Right to Information Act, 2005	To provide right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority.	It is related to all those organizations and individuals who would like to secure information on the activities and schemes under the proposed CHIRAG project. It is

		relevant to maintaining transparency of project activities.
Panchayati Raj Act 1953, 73 rd Amendment 1994	The act leads towards village governance and establishes the bottom up approach. The Panchayati Raj Institutions considered as self Government for rural areas whether at the level of a village or a block or a district. They are responsible for preparation of plans for the development programs include drinking water, minor irrigation, rural sanitation, natural resources management and other socio-economic and so on, mobilization of resources for relief during natural calamities, removal of encroachments on public properties, organizing voluntary labour and contribution for community works and maintenance of essential statistics of villages.	Applicable for CHIRAAG as during the implementation of the project activities require institutional support at different levels. This Act will facilitate support for the active participation of the village communities and other democratic institutions that may yield the effective outcomes of interventions.
Extension of Panchayati Raj to Scheduled Areas (PESA) 1996	The Act provides for extension of the provisions of Part IX of the Constitution relating to the Panchayats to Scheduled Areas. The Act allows greater recognition to tribal economic and sociocultural systems, autonomy for local governance and control over natural resources in scheduled areas of the country. Every Gram Sabha shall: i). approve of the plans, programs and projects for social and economic development before such plans, programs and projects are taken up for implementation by the Panchayat at the village level; ii). be responsible for the identification or selection of persons as beneficiaries under the poverty alleviation and other programs	Any project intervention should honour and maintain the autonomy of the tribal. Applicable as project needs to take prior informed consent for project interventions, to ensure that livelihood enhancement interventions are socially acceptable. Introduction of new crops/ technologies /food crops should take into consideration their cultural preferences. The project needs to ensure that tribal communities participate in project activities and there will be no adverse impacts on local tribal groups.
National Policy on Tribal Development, 1999	The policy seeks to bring scheduled tribes into the mainstream of society through a multi-pronged approach for their all-round development without disturbing their distinct culture.	This policy will be applicable to project activities in tribal dominated districts. The need is to ensure that tribal communities participate in the

	Development and empowerment of STs is enshrined in the Constitution and the tribal subplans included covered under the Five Year Plans.	project activities and there are no adverse impacts on local tribal groups. The policy is applicable in the tribal districts. The project interventions should be dovetailed with the Tribal Development Sub Plan in order to facilitate the achievement of its objectives of the sub plan.
Tribal Sub Plan	Under TSP, all funds from various programs are pooled and used strategically to support the socioeconomic development of tribal within a specified period.	The project intends to invest in upgrading agriculture, NTFP and small livestock processing and marketing infrastructure in different districts. There is a need for working with the Tribal Development Department to ensure that project benefits are accessed by the tribal communities.
Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	The Act provides three kinds of rights to Scheduled Tribes and Other Traditional Forest Dwellers: Land Rights: Right to continue cultivating land (less than or equal to four hectares) where they have been cultivating prior to 13 December 2005. Use Rights: Provides for rights to use and/or collect a) minor forest produce (tendu patta, herbs, medicinal plants) that has been traditionally collected, b) Grazing grounds and water bodies, c) Traditional areas of use by nomadic or pastoralist communities Right to protect and conserve: Gives the community the right to protect and manage the forest.	This Act is particularly relevant, and will be applicable to the districts with large proportion of tribal population. Where agricultural improvement investments are made on lands inhabited by tribal the project will not question the ownership of their lands.

3.2 The World Bank's Standard on Stakeholder Engagement Plan

18. The World Bank's Environmental and Social Framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects, with the aim of ending extreme poverty and promoting shared prosperity. The Environmental and Social Standards set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts

associated with projects supported by the Bank through Investment Project Financing. The Bank believes that the application of these standards, by focusing on the identification and management of environmental and social risks, will support Borrowers in their goal to reduce poverty and increase prosperity in a sustainable manner for the benefit of the environment and their citizens. The ten (10) Environmental and Social Standards establish the standards that the Borrower and the project will meet through the project life cycle. ESS 10, “Stakeholder Engagement and Information Disclosure”, recognizes “the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice” (World Bank, 2017: 97). Specifically, the requirements set out by ESS10 are the following:

- “Borrowers will engage with stakeholders throughout the project life cycle, commencing such engagement as early as possible in the project development process and in a timeframe that enables meaningful consultations with stakeholders on project design. The nature, scope and frequency of stakeholder engagement will be proportionate to the nature and scale of the project and its potential risks and impacts.
- The Borrower will maintain and disclose as part of the environmental and social assessment, a documented record of stakeholder engagement, including a description of the stakeholders consulted, a summary of the feedback received and a brief explanation of how the feedback was considered, or the reasons why it was not.” (World Bank, 2017: 98).

19. A Stakeholder Engagement Plan proportionate to the nature and scale of the project and its potential risks and impacts needs to be developed by the Borrower. It needs to be disclosed as early as possible, and before project appraisal, and the Borrower needs to seek the views of stakeholders on the SEP, including on the identification of stakeholders and the proposals for future engagement. If significant changes are made to the SEP, the Borrower has to disclose the updated SEP (World Bank, 2017: 99). According to ESS10, the Borrower should also propose and implement a grievance mechanism to receive and facilitate the resolution of concerns and grievances of project-affected parties related to the environmental and social performance of the project in a timely manner (World Bank, 2017: 100).

4.0 Brief Summary of Previous Stakeholder Engagement

20. Based on the project objective and components of the project, stakeholders were identified. Since the focus of the project is on marginalized community, the Project has identified the disadvantaged and vulnerable people as landless and marginal farmers, PVTGs, scheduled castes households, scheduled tribes, women headed households as well as households designated below the poverty line. These households are more constrained than others to access benefits from the project and participate more fully in the planning and consultations. Consultations held as part of the ESA process saw large scale participation from the communities, and these disadvantaged and vulnerable groups were part of all the consultations. Special consultations were also held with transhumant as well as tribal households, PVTG households, Special Consultations were also held in many backward Gram Panchayats and Tribal Villages. Before the consultations, relevant information in local language was shared with the communities in order to give them information on the project objectives/activities and seek their feedback and concerns/issues with respect to project components.

21. Consultations were also held with the state departments of Forests, Agriculture, Animal Husbandry, Rural Development and the Science and Technology to understand the scope of their participation and sectoral interventions under the project, and the potential social and environmental risks and issues involved. During the ESIA process consultations were carried out with various stakeholders. One village from each Block was randomly selected where consultations took place. Villages and Blocks were selected on the basis of agro-climatic regions in the state and indicators like high percentage of tribal population, cropping intensity, fertilizer usage, net irrigated area etc. Consultations were carried out in 8 villages with about 136 farmers, members of SHGs, FPOs and other women groups. Separate consultations were carried out in these villages with PRI representatives, traditional tribal leaders, District and Block officials.

22. During the initial process of consultations some of the issues pointed out by the primary stakeholders (the farmers and village community) varied. Small and marginal farmers pointed out issue of low productivity due to lack of irrigation, lack of availability of high-quality seeds, lack of market linkages etc. Farmers who had animals pointed out to the issue of lack of feed, fodder, medical aid etc. Other issues included lack of capacity, poor market linkages, lack of access to capital etc.

Table 2: List of Stakeholders consulted

S. No.	Particular	Blocks	Total
1	Farmers (Male & Female farmers for agriculture, horticulture and NTFPs)	Marginal Farmers (< 1 ha) = 6 Small (1- 2 ha) = 2 Medium (2-4 ha) = 1 Large (More than 4 ha) = 1 Total = 10	80
2	Live Stock (Individual/Community)	02 from each block (Two Live stock rearing farmers will be selected from each of the selected block)	16
3	Poultry (Individual/Community)	02 from each block	16
4	Fishery (Individual/Community)	02 from each block	16
5	Piggery	01 from each block	8
6	Institutions	FPOs, SHGs, NGOs and Women group, KVK, District and Block Officials – One group from each who was functioned as per location conditions.	20

23. During the preparation of ESA, consultations / in-depth interviews were carried out with the above-mentioned stakeholders. Following were agreed:

- Community to be consulted various stages of the project preparation through community consultations.

- Specific consultations will be held near the sites proposed to seek opinions/suggestions of the communities involved. The outcome of consultations will be incorporated as appropriate in the designs and mitigation plans.
- As part of such consultations, the draft mitigation plans will also be presented and explained to the people on the content and process of the implementation of the plans.
- The implementing agencies (IAs) shall also hold consultations not only with the community but also with the concerned line departments at the district and block level and provide opportunities for information sharing and collaboration measures.

24. Specific Consultation with the tribal community:

For consultation with tribal groups, Department of Agriculture, Government of Chhattisgarh will hire an appropriate specialist with knowledge of the socio-cultural life style of the group. The Social Safeguard Specialist of World Bank will participate in the consultation (i) with the tribal community; (ii) discuss tribal issues with the tribal administration; and (iii) with the Department of Agriculture.¹

4.1 Stakeholder identification and analysis

25. The main project implementers and beneficiaries will be relevant community organizations such as CHIRAAG Resource Centre Management Committees, the Gowthaan Management Committees supported under the project (or strengthened, where appropriate), the PRI Institutions the direct beneficiary households, as well as the Department of Agriculture at the State and District levels. The key stakeholders of the Project include farmers groups/cooperatives, joint forest management committees (JFMCs), as well as women's groups and women producers. The disadvantaged and vulnerable households especially landless and marinal farmers, women headed households, disabled households, scheduled tribes These and other key stakeholders who will be informed and consulted about the project are summarized below.

- **Project Beneficiaries:** The project will be implemented in 1500 selected GPs in 25 Development Blocks of the 18 districts of Chhattisgarh. The Districts are spread over three Geographical areas of the state. In these 1500 GPs, the key project beneficiaries include farming communities (especially small-scale farmers), including women, disadvantaged groups as well as, who will benefit from improved access to irrigation water, climate smart extension services, and markets as well as the future reductions in land degradation. Women, and the community at large, will also benefit from employment opportunities in nursery and plantation activities and the development of high value agricultural value chains. Community members will benefit from training on improved production and post-harvest practices, and basic business skills, as

¹In order to determine the applicability of ESS7, the Bank will undertake a screening in accordance with the criteria in paragraphs 8 and 9 of ESS7, to determine whether Indigenous Peoples (or as they may be referred to in the national context) are present in, or have collective attachment to, the proposed project area. In conducting this screening, the Bank may seek the technical advice of specialists with expertise on the social and cultural groups in the project area. The Bank will also consult the Indigenous Peoples concerned and the Borrower. The Bank may follow the Borrower's national processes during project screening for identification³⁶ of Indigenous Peoples, where these processes meet the requirements of ESS7. Where Indigenous Peoples are present in, or have a collective attachment to, the proposed project area, the Bank will require the Borrower to undertake a process of meaningful consultation tailored to Indigenous Peoples in accordance with ESS7. The outcome of the meaningful consultation will be documented. The Bank will undertake the necessary due diligence and ascertain the outcome of the meaningful consultation, and this will contribute to the Bank's decision making as to whether to proceed with the proposed project or not.

well as technical and financial support to invest in sustainable value chain development. Improvements in nutrition outcomes as a result of the investments will particularly benefit women and Scheduled Tribes, as they are most malnourished groups. Their participation in implementation and management of resources and assets would provide them income generating opportunities to local youth who will be trained under various components of the Project.

- Disadvantaged and Vulnerable Households. The Project has identified the disadvantaged and vulnerable people as landless and marginal farmers, PVTGs, scheduled castes households, scheduled tribes, women headed households, disabled households as well as households designated below the poverty line as per SECC criteria. The State has also identified a list of backward Gram Panchayats, some of which are included in the Project area proportionately to ensure that the positive spill-over effects emerging from the interventions proposed under the project. These vulnerable households are more constrained than others to access benefits from the project and participate more fully in the planning and consultations. No adverse project impacts will fall disproportionately on these especially vulnerable groups, and adequate safeguards have been included.
- Adversely affected households. (Potential adverse impacts): At this stage, the project does not identify any directly affected population groups to be negatively affected mainly because the project does not include any land acquisition or the potential to cause involuntary physical resettlement or relocation. However, small scale, local level infrastructure planned and prioritized by the communities could involve very small scale of land donation either by individuals or the Government, which needs to be managed to avoid the potential for adverse impacts, especially on vulnerable households, following the due diligence provided under ESS5.
- Other Interested stakeholders (including government departments): The Chhattisgarh Agriculture Department will be the nodal department along with the line department viz; Rural Development, Animal Husbandry, Horticulture, Fisheries, and Panchayati Raj Department etc. will be the main stakeholders from the State. All department officials expressed interest in convergence modalities. These officials showed interest in climate resilient farming, climate change adaption methods, and training of beneficiary groups in good agriculture practices. The project will also increase the skills and capacity of the IGKV, the Gram Panchayats and other government officials. Private Partners involved in agribusiness and value chain development as well as NGOs partners associated with irrigation, agriculture, horticulture, animal husbandry, natural resource management, tribal development and preservation of indigenous knowledge and rural development would be interested to partner the project.

4.2 Summary of Stakeholder Needs

26. The engagement needs of the key stakeholders as agreed during consultations are summarized in the table below:

Table 3: Summary of Stakeholder Needs

Stakeholder Group	Type of Stakeholder	Language Needs	Preferred notification means	Specific needs (accessibility, large
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	1. Beneficiaries and Affected Households 2. Vulnerable and disadvantaged 3. Other Interested Parties		(e-mail, phone, radio, letter, etc.)	print, child care, daytime meetings, etc.)
Individual small and marginalised farmers, existing CBOs of farmers, joint forest management, watersheds, agriculture and animal husbandry	Beneficiaries and affected households.	Hindi	Through phone, Gram Panchayat, village leaders, Representatives and local NGO representatives	Meetings held in Panchayat Office or largest revenue village in the GP.
Women farmers and women headed households, women's federations	Vulnerable groups and affected households	Hindi and local tribal language	Through self-help groups, community coordinators, Anganwadi workers, Gram Panchayat Representatives and local NGO representatives	Meetings aligned with meeting schedule of self-help groups, village federations and other CBOs; within their habitations
Disadvantaged and Vulnerable Households, including landless and disabled households.	Vulnerable groups	Hindi and local tribal language	Through self-help groups, community coordinators, Anganwadi workers Gram Panchayat Representatives and local NGO representatives	Special Meetings organised with advance notice organised at suitable timings and in accessible places;
PVTGs	Vulnerable groups	Local Tribal Language	Through tribal community leaders; officials of tribal department and community coordinator	Special Consultation meetings at times favoured by the tribal groups within their habitations

Gram Panchayat Elected Leaders and Officials	Other Interested Parties	Hindi	Official notification from Chhattisgarh Agriculture Department through letters and emails.	Meeting with advance notice to all the elected GP members and key GP officials along with CBO leaders and NGO representatives and other village level workers of line agencies
Departments of Forests, Agriculture, Livestock Development Science and Technology, Fisheries, Environment, Chhattisgarh State Minor Forest Produce (Trading & Development) Co-operative Federation Limited, Chhattisgarh Environment Conservation Board, UNICEF, IFAD	Other Interested Parties	Hindi and English	Official notification from SPMU; DPMU; and Line Departments through letters and e-mails	Meetings held with suitable advance notification in block level office.

Roles & Responsibilities of Stakeholders

The project has identified the main stakeholders of the projects as: i) *Positively affected Project Beneficiaries*, mainly small and marginal farmers, Gram Panchayats, farmers groups/cooperatives, SCs and STs, and women's groups; ii) *Disadvantaged and Vulnerable Households*, such as landless and marginal farmers, PVTGs, scheduled castes households, scheduled tribes, women headed households, disabled households as well as households designated below the poverty line identified through SECC; iii) *Potentially negatively affected groups*, such as vulnerable households donating land for community infrastructure or households facing temporary access/use restrictions from new grazing pastures, fodder plots and plantations; and iv) *Other Interested stakeholders* such as well as line departments of Animal Husbandry, Horticulture, Rural Development and Panchayati Raj, and Science and Technology. Private partners involved in agribusiness and value chain development as well as NGOs associated with forestry, agriculture, horticulture, animal husbandry, natural resource management and rural development are also important stakeholders of the project. The analysis of different stakeholders,

their role in the project in planning and implementing project interventions is summarized in table below.

Role of stakeholders in the project

S. No.	Stakeholders	Role
1	Women	<p>Women at the household level play a major role in agriculture and allied sector but often marginalize in benefit sharing and ownership.</p> <ul style="list-style-type: none"> ✓ Active participation of women in agri-horticulture & allied sector, production, processing & marketing activities for equitable distribution of benefits. ✓ Participation in Gauthan committees; livelihood groups; CSC; etc. ✓ Participation in preparation and implementation of VDPs ✓ Volunteer as nutrition facilitators (<i>Poshan Sakhi</i>)
2	Marginalized communities	<p>The project aims to include the tribal population and socially neglected sections of the society for inclusion combined with pro poor investments.</p> <ul style="list-style-type: none"> ✓ Role in various committees to be formed under the project including in executive committees ✓ Participation in preparation and implementation of VDPs ✓ Participation in training programs and adapt to modern technology ✓ Participate in existing state government and central government schemes. ✓ Participate in FPOs ✓ Tribal families to assist project in harnessing the traditional and indigenous knowledge base of the population towards improving natural resource management
3	TSA	<ul style="list-style-type: none"> ✓ Consult stakeholders to establish VCDC and market linkage; ✓ Assist in capacity building of FPO through business plan development including guidelines, manuals, training, organizing exposure visits etc.; ✓ Arrange for market support activities; ✓ Organize promotion activities and engage community through IEC, workshops/ events, etc.
4	Primary Producers	<ul style="list-style-type: none"> ✓ Participate in agriculture, horticulture and allied sectors interventions as beneficiaries ✓ Planners and beneficiaries of individual and community-based intervention. ✓ Responsible for planning; implementation and maintenance of individual and community resources. ✓ Part of producer organizations as agro-enterprises will be formed in the identified areas ✓ Participate in trainings organized by the project and adapt to modern scientific knowledge and innovations ✓ Assist project in harnessing the traditional and indigenous knowledge base of the population towards improving natural resource management.
8	Community based Groups, FPOs, SHGs, PGs	<ul style="list-style-type: none"> ✓ Assist project in implementing Behavioural Change Communication (BCC). ✓ Assist project in social mobilization ✓ Mobilize community to participate in project interventions
9	Front line Department (site specific department & Staffs)	<ul style="list-style-type: none"> ✓ Disseminate project information ✓ Ensure incorporation of community feedback in project design ✓ Establish GRM

4.3 Information Disclosure and Engagement Methods

27. The final draft of the Stakeholder Engagement Plan (SEP) will be re-disclosed on the projects website and shared with all the District and Block Development Offices as well as the targeted Gram Panchayats. The SEP will be disclosed and publicly accessible throughout project implementation period. All updated versions will also be re-posted on the project portal. CHIRAAG will use various methods of engagement that will be used by the implementing agencies as part of their continuous interaction with the stakeholders. The method of engagement will be constantly reviewed or its appropriateness, outreach and impact, as well as inclusivity.

28. Ensuring the participation of vulnerable individuals and groups in project consultations will require the implementation of tailored techniques. The vulnerable groups identified by the project include the rural population, people living with disabilities, women, and disadvantaged youth. Attention will be given to the vulnerable groups to ensure that they are not denied project benefits. This will be done by focus group discussions, monitoring participation rates, undertaking beneficiary assessments, using online platforms to allow access to otherwise disadvantaged groups, and ensuring that at least 30% of participant trainees are females. The table below summarizes the variety of methods that would be used for information disclosure to reach all the key stakeholders. A summary description of the engagement methods and techniques that will be applied by project developer is provided below. The summary presents a variety of approaches to facilitate the processes of information provision, information feedback as well as participation and consultation.

4.4 Framework for Stakeholder Engagement

29. Unlike traditional types of engagement – Communication and Consultation, Citizen Engagement is an interactive two-way process that encourages participation, exchange of ideas and flow of conversation. It reflects the willingness to share information and make citizens a partner in decision making. Active engagement gives the right to hold others accountable, and accountability is the process of engaging in participation. It seeks greater accountability from the service providers through increased dialogue, consultation and monitoring and assessing performance externally and mutually.

Table 4: Information dissemination and modes of disclosure and engagement for consultation

Target stakeholders	Information to be disclosed	Tools of engagement & mode of disclosure	Frequency	Responsibilities
Component 1: Empowering Community				
<ul style="list-style-type: none"> ✓ Small and marginal farmers ✓ women farmers ✓ SC, ✓ STs, ✓ PVTGs, ✓ Women headed households, ✓ village youth 	<ul style="list-style-type: none"> ✓ Project Scope ✓ Process of selection of beneficiaries ✓ Grievance mechanisms ✓ Participatory planning process, 	<ul style="list-style-type: none"> ✓ Consultative meetings ✓ Participatory integrated planning tools ✓ Information of conducting participatory process will be available in the 	<ul style="list-style-type: none"> This is a continuous activity. ✓ Monthly consultative meetings with the community ✓ Monthly grievance redress meeting 	<ul style="list-style-type: none"> ✓ Community Coordinator ✓ Agriculture Extension Officer of BPIU

✓ Gauthans	✓ Activities to be undertaken and trainings to be provided	local Gouthan Committee's office in local language through pamphlets and other means of communication as appropriate.	✓ Information dissemination on monthly basis	
Component 2: Nutrition-supportive, Climate Resilient and Diversified Production Systems				
<ul style="list-style-type: none"> ✓ Vulnerable households, ✓ Gauthans ✓ Officials from relevant line departments (e.g., forest, agriculture, horticulture, and animal husbandry, fishery etc.) ✓ KVKs ✓ Local Agriculture and Animal Husbandry Universities 	<p>Information dissemination on :</p> <ul style="list-style-type: none"> ✓ community natural resource management system, ✓ Integrated farming system, ✓ Participatory technique for management of common infrastructure such as rain water harvesting tanks or micro irrigation. ✓ benefit sharing mechanism. ✓ Formation of livelihood groups ✓ Inter departmental coordination mechanism 	<ul style="list-style-type: none"> ✓ Village level meetings – use of audio – visual tools ✓ Door-to-door visits, ✓ Project leaflets, ✓ Training ✓ Workshops ✓ Exposure visits 	<ul style="list-style-type: none"> ✓ Monthly village level meetings ✓ Quarterly Door to Door visits ✓ Workshops and exposure visits will be conducted bi-annually 	<ul style="list-style-type: none"> ✓ Community Coordinator ✓ Agriculture Extension Officer ✓ District Project Officer through extension workers ✓ State PMU
Component 3: Value Addition and Market Access				
<ul style="list-style-type: none"> ✓ Vulnerable households ✓ Gauthans ✓ KVKs ✓ Local/national knowledge organizations viz., Central Food Technology Research Institute (CFTRI), National Institute of Food Technology and Entrepreneurship 	<p>Information dissemination on:</p> <ul style="list-style-type: none"> ✓ value addition of primarily food preservation, storage etc ✓ Post-harvest management ✓ Trainings and capacity building for management of common facilities; 	<ul style="list-style-type: none"> ✓ Consultative meetings ✓ Participatory integrated planning tools ✓ Workshops <p>Information of conducting participatory process will be available in the local Gouthan Committee's office in local language through pamphlets</p>	<p>Throughout the project cycle</p> <ul style="list-style-type: none"> ✓ Monthly consultative meetings with the community ✓ Quarterly consultative meetings with district officials ✓ Workshops for capacity building to be held every six months 	<ul style="list-style-type: none"> ✓ PMU ✓ PCU ✓ PIU

Management (NIFTEM). ✓ Local agriculture universities. ✓ CBOs	✓ Training of farmers for producer's groups	and other means of communication as appropriate		
Component 4: Project monitoring and management and State capacity				
✓ Agriculture Department, ✓ IGKV ✓ KVKs ✓ National and International organizations viz., CFTRI, Mysore; NIN, Hyderabad; BI; IRRI, etc. ✓ Line departments	✓ Project coordination, implementation, financial management, procurement, and environmental and social safeguards management ✓ Tribal Knowledge	✓ Consultative meetings ✓ Participatory integrated planning tools ✓ Workshops	✓ Quarterly consultative meeting with district officials ✓ Workshops every six months	✓ PMU ✓ PCU

30. **Ways of Stakeholder Engagement:** A variety of mechanisms may be adopted to incorporate and promote stakeholder engagement in Projects.

a) Information sharing: In order to generate awareness and to prepare the stakeholders, elected representatives and other stakeholders, a wide range of information needs to be disseminated. It includes display of services and service levels, roles and responsibilities of officials and escalation mechanism, etc. In addition, regular meetings and interfaces will also be used to share information. For many departments and services, mobile based voice or text services and web-based presence will serve as an additional channel for information sharing.

b) Consultation: Consultative meetings with the stakeholders are to be undertaken at different stages of the project cycle at regular intervals. Each intervention should be discussed with the community, beneficiaries, elected representatives, local civil society groups and other stakeholders to get their perspectives included in the designing of the interventions, and thereby increasing the chances of ownership among various stakeholders. Such consultations will be undertaken both online as well as face to face.

c) Joint assessment: Participatory assessment and monitoring with the stakeholders, particularly the identified service seekers / beneficiaries, will be used as tools for enhancing stakeholder engagement.

Process	Mechanism
Correspondences (Phone, Emails)	<ul style="list-style-type: none"> • Distribute Project brief/information to Government officials, NGOs, Local Government, and organisations/agencies

Table 5: Mechanism for Information Sharing and Process	
Process	Mechanism
	<ul style="list-style-type: none"> • Invite stakeholders to meetings and follow-up
One-on-one meetings	<ul style="list-style-type: none"> • Seeking views and opinions • Enable stakeholder to speak freely about sensitive issues • Build personal relationships • Record meetings
Formal meetings	<ul style="list-style-type: none"> • Present the Project information to a group of stakeholders • Allow group to comment – opinions and views • Build impersonal relation with high level stakeholders • Disseminate technical information (as required) • Record discussions
Public meetings	<ul style="list-style-type: none"> • Present Project information to a large group of stakeholders, especially communities • Allow the group to provide their views and opinions • Build relationship with the communities, especially the vulnerable • Distribute non-technical information (as required) • Facilitate meetings with presentations, PowerPoint, posters etc. • Record discussions, comments, questions.
Focus group meetings	<ul style="list-style-type: none"> • Present Project information to a group of stakeholders • Allow stakeholders to provide their views on targeted baseline information • Build relationships with communities • Record responses
Project website and disclosure	<ul style="list-style-type: none"> • Present project information and progress updates • Disclose ESIA, ESMP, SEP, ESCP, GAP, Contract Progress, GAP / TDP Implementation progress, Grievances and redresses of Grievances and other relevant project documentation.
Direct communication with people	<ul style="list-style-type: none"> • Share information on timing of commencement of civil works, demo activities • Selection of beneficiaries • Agree options for crops and relocation of fences/structures e.g. sheds
Project leaflet	<ul style="list-style-type: none"> • Brief project information to provide regular update • Site specific project information. • Information on disruption of power and water supply etc.

4.5 Challenges of COVID-19 and Stakeholder Engagement

Current Situation

31. As of now five out of 28 districts in the state are affected by the pandemic. However, none of them are project district. The state however is vulnerable and current pandemic makes it more vulnerable. as Chhattisgarh has the lowest per-capita income in the country and has the highest poverty rate in the country. The rate of poverty reduction lags behind the rates of reduction seen in the rest of

the country². It is home to 10% of the total Scheduled Tribes population in the country and constitute nearly one-third of the State's population³ and poverty is concentrated among few groups particularly the Scheduled Tribes who comprise nearly one-third of the State population. The ST population is primarily dependent on forest produce for their livelihood and register poverty rates of slightly over 50 percent. Nearly 80 percent of the state's population is dependent on the agriculture sector which contributes to only 17 percent of State GSDP⁴. The State's agriculture dependent population and the ST population dependent on Forests are highly vulnerable under the current pandemic.

32. In order to help tribal community, the state government has started the procurement process⁵ of collection of the Minor Forest Produce and estimates that around 15 lakh standard sacks of *tendu* leaves from 12 lakh families will be completed. The Government has hiked the price from Rs. 2500 per standard bag to Rs. 4000 per standard bad leading to an additional remuneration of Rs. 225 crores to be distributed to these 12 lakh families. Amidst lock-down 5,500 forest SHGs (around 55,000 women) involved in the regular procurement of the Forest department, have made a purchase of 50,000 quintals of forest produce worth Rs.100 crores

Process to be followed:

33. The preparation stage of CHIRAG is over and consultations including household surveys have been completed. The activity that needs to be carried out is dissemination of finalized documents. The PCU will ensure effective and meaningful consultations to meet project and stakeholder needs through digital means including social media while following the restrictions put in place by the state government. Specifically, the PMU / PCU and PIU will undertake the following:

- ✓ At the state level, PMU will review the COVID-19 spread situation in the project area and the restrictions put in place by the government to contain virus spread every week to issue guidelines to PCU and PIU to follow;
- ✓ PMU in consultation with district level PCU and block level PIU will review the Stakeholder Engagement Plan (SEP) in terms of approach, methods and forms of engagement proposed in the SEP and assess the associated potential risks of virus transmission in conducting various engagement activities;
- ✓ PIU and PCU to avoid public gatherings (till restrictions are in vogue) including dissemination workshops and community meetings, and minimize direct interaction between project agencies and beneficiaries / community;
- ✓ With due permission of District Magistrate, PMU to conduct consultations in small groups with PCU and PIU members on dissemination plan. If not permitted, PMU to make all reasonable efforts to conduct meetings through online channels, including WebEx, WhatsApp and skype meetings; if possible, PMU to create dedicated online platforms and chatgroups appropriate for the purpose
- ✓ For community level information dissemination if needed, project will employ traditional channels of communications (TV, newspaper, radio, dedicated phone-lines, SMS on phone, etc.) as many communities may not have access to online channels or do not use them frequently.
- ✓ In situations where it is determined that meaningful consultations that are critical to the conduct of a specific project activity cannot be conducted in spite of all reasonable efforts, the proposed project activities will be postponed for reasonable time in view of the virus spread risks. This

² State Brief, World Bank Group (2016)

³ Chhattisgarh is home to 10 percent of the total tribal population in the country

⁴ Economic Survey, Government of Chhattisgarh, 2017-18

would depend on the COVID-19 situation in Chhattisgarh, and the government policy requirements to contain the virus spread.

Actions to be taken during implementation

34. During implementation, the project will have series of public consultation and stakeholder engagement activities as planned and committed. These activities will include community meetings, focus group discussions, field surveys and individual interviews with government officials, etc. Given the risk of virus spread, PMU in consultation with PCU and PIU will review the approach and methodology for conducting stakeholder consultations and engagement, taking into account the restrictions and advisory issued by state government from time to time. Specifically, the project will undertake the following:

- PMU jointly with PCU and PIU will review the planned activities requiring stakeholder engagement and public consultations. The review will include the level of proposed direct engagement with stakeholders, including location and size of

Box 1. Issues to consider while planning stakeholder engagement

- ✓ For which project activities consultation/engagement is **critical and cannot be postponed** without having significant impact on project timelines?
- ✓ What is the **level of proposed direct engagement** with stakeholders, including location & size of proposed gatherings, frequency of engagement, categories of stakeholders (international, national, local), etc.?
- ✓ What is the **risk of the virus transmission** for these engagements, and how restrictions that are in effect in the country/project area would affect the engagements?
- ✓ Which **protocols and permissions** have to be obtained from local/concerned authorities for carrying consultations or other forms of engagement?
- ✓ What is the level of **ICT penetration** among key stakeholder groups, and which communication channels can be effectively used in the local conditions?

- proposed gatherings, frequency of engagement, categories of stakeholders (international, national, local) etc.
- Assess the level of risks of the virus transmission for these engagements, and how restrictions (in case restriction continues) that are in effect in the state/ project area would affect these engagements.
- Identify project activities for which consultation/engagement is critical and cannot be postponed without having significant impact on project timelines.
- Assess the level of ICT penetration among key stakeholder groups, to identify the type of communication channels that can be effectively used in the project context. Identify specific channels of communication that should be used while conducting stakeholder consultation and engagement activities. The following are some considerations while selecting channels of communication, in light of the current COVID-19 situation:
- Avoid public gatherings (taking into account national restrictions), including public hearings, workshops and community meetings;
- If smaller meetings are permitted by the district magistrate, conduct consultations in small-group sessions, such as focus group meetings and in case it is not permitted, conduct meetings through online channels, including WebEx, WhatsApp and skype;
- Use social media and online channels.
- Where possible and appropriate, create dedicated online platforms and chatgroups appropriate for the purpose, based on the type and category of stakeholders;
- For reaching out to community, employ traditional channels of communications (TV, newspaper, radio, dedicated phone-lines, and mail) as community members may not have access to online channels or do not use them frequently.

- In situations where none of the above means of communication are considered adequate for required consultations with stakeholders, PMU in consultation with the PCU and PIU will reschedule project activity to a later time, when meaningful stakeholder engagement is possible.

4.6 Strategy and differentiated measures for Vulnerable Groups

35. The project will be implementing differentiated measures to include the feedback of vulnerable and disadvantaged groups during the stakeholder engagement process under project implementation. These disadvantaged and vulnerable people are: landless and marginal farmers, scheduled castes households, scheduled tribes, PVTGs, women headed households, people with disability, as well as households designated below the poverty line. Project will employ community coordinators at the investment level. One Community coordinator (CC) will cover 6 villages. The CC will be responsible for mobilization of marginalized community including tribal families. The site specific interventions will be discussed with the community in a village level meeting ensuring participation of all sections of the society. It will be the responsibility of Agriculture Extension Officer at block level to ensure that community feedback is incorporated in the design of the project to the extent possible.

36. These main measures are presented below.
- identification of these disadvantaged and vulnerable households, as part of the participatory assessment exercise that will be undertaken in the planning process;
 - Dedicated consultations with vulnerable households during planning, as well as during periodic review with the CRCs;
 - inclusion amongst beneficiaries of individual benefits as well as common assets and demonstrations;
 - Participatory planning and Implementation of animal husbandry focused interventions, especially targeting the tribal as per their cultural norms;
 - Differential, and lower, cost sharing requirements for vulnerable households in accessing individual benefits related to agriculture, horticulture, animal husbandry;
 - Screening and mitigation planning to ensure vulnerable and disadvantaged groups are not adversely and disproportionately by project interventions.

4.7 Roles, Responsibilities and Resources for Stakeholder Engagement

37. Though the Project Management Unit (PMU) under the Department of Agriculture, Government of Chhattisgarh at state level will be overall responsible for implementation of SEP, the community coordinator (one for every six villages) at the village level are primarily responsible for implementation of SEP. The community coordinator under the supervision of Agriculture Extension Officer of Block level PIU will engage with community through community consultations. The Block level Agriculture Extension Officer will be responsible for in-depth interview / consultation with concerned line department at the block level and similarly District level, Social Specialist of DPCU will be responsible for engaging with the district level officials. The Social Development Specialist in PMU will be responsible for guiding district and block level specialists for the implementation of SEP. The table below summarises the role and responsibilities:

Table 6: Summary of Role of Officials responsible for implementation of SEP

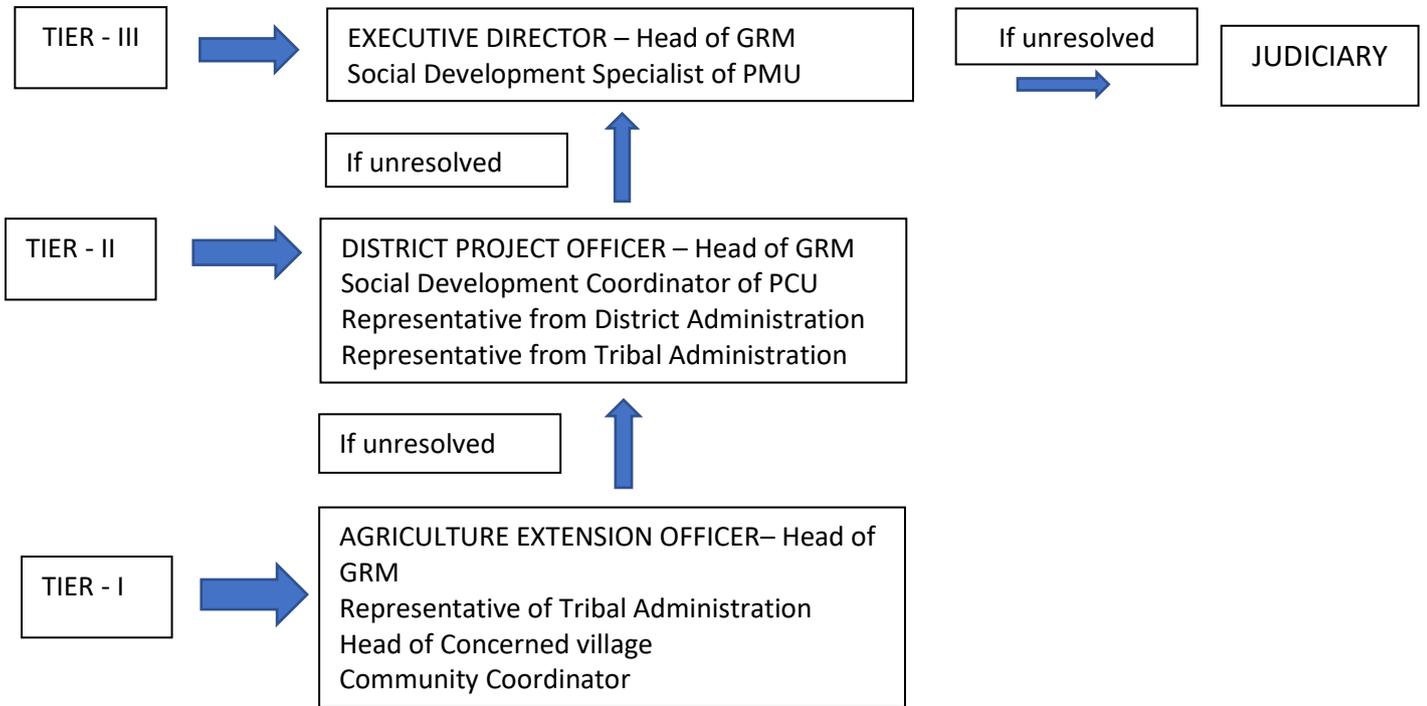
Sl. No.	Level	Official Responsible	Role	Official Responsible for documentation and frequency
1	Village	Community Coordinator	<ul style="list-style-type: none"> • Community to be mobilized and consulted during various stages of the sub project preparation through community consultations. • Conduct consultations near the sites proposed to seek opinions/suggestions of the communities involved. • Document the outcome of the consultations • Share the outcome of the consultations with the Block level PIU • Take feedback from the community on the project implementation and grievances 	<p>Community Coordinator</p> <p>Every Month</p>
2	Block	Agriculture Extension Officer	<ul style="list-style-type: none"> • Engage with implementing agency to incorporate as appropriate community feedback in the designs. • Present the draft plans will and explain to the community on the content and process of the implementation of the plans. • Engage with the block level officials of concerned line department for information dissemination and collaboration measures. • Prepare minutes of the meeting and disseminate the same • As first level of contact for any grievances, 	<p>Agriculture Extension Officer</p> <p>Every month</p>

			report grievances to district project officer (DPO)	
3	District	Social Specialist of PCU	<ul style="list-style-type: none"> Engage with the district level officials of concerned line department for information dissemination and collaboration measures Prepare minutes of the meeting and disseminate the same Assist DPO in resolution of grievances. 	District Project officer Every Quarter
4	State	Social Specialist of PMU	<ul style="list-style-type: none"> Engage with the state level officials of concerned line department for information dissemination and collaboration measures Prepare minutes of the meeting and disseminate the same Assist Project Grievance Officer (Executive Director) in resolution of grievances. 	Social Specialist of PMU Every Quarter

5.0 The Institutional Structure of Grievance Redress Mechanism

38. The Project will establish a Grievance Redress Mechanism (GRM) with the aim to respond to queries or clarifications or complaints about the project and address complaints/concerns and grievances of the stakeholders. The GRM will focus on corrective actions that can be implemented quickly and at a relatively low cost to resolve identified implementation concerns, GRM will also serve as a channel for early warning, helping to target supervision to where it is most needed and identify systemic issues. The institutional arrangement for the GRM will be established as following:

Grievance Redress Mechanism



- **Block level Grievance Officer:** The Agriculture Extension Officer (AEO) of PIU will be first level of contact for grievances. The AEO with the help of community coordinator, representative of tribal administration at block level and head of the concerned village, within 15 days of receiving the grievance shall communicate the resolution to the aggrieved person. If the aggrieved person is not satisfied, he or she can escalate the issue to district level.
 - **District level Grievance Officer.** The District Project Officer (DPO) will be the nodal Grievance Officer at the District Level responsible for receiving, tracking and resolving grievances from the stakeholders. The DPO will be assisted by Social Specialist of district level PCU and a representative each from district administration and tribal department. If grievance remains unresolved for not to the satisfaction of aggrieved person within 15 days of receiving the grievance, the grievance will be escalated to State level.
 - **Project Grievance Officer.** The Executive Director of the CHIRAAG will be the ex-officio, senior most official to act as the Grievance Officer for the whole project. The ED will hold quarterly reviews of the functioning of the GRM. The Social Specialist will assist the Executive Director in resolution of grievances. The grievance should be resolved to the satisfaction of the aggrieved person within 15 days of receiving the grievance.
 - The aggrieved person can register grievance either in writing or verbally. Community Coordinator (CC) will be responsible for assisting the aggrieved person in registering the grievances and escalating if necessary. The CC will be responsible for providing the feedback to the aggrieved person.
 - Status of Grievances received and resolved will be track through the project MIS as well as monthly progress reports from the Districts and Blocks.
 - Chhattisgarh Department of Agriculture will be issuing an office order and necessary notifications to establish and operationalize the GRM for the project.
39. Grievance Channels. Project beneficiaries and stakeholders will be able to submit their grievances, feedback and inquiries to the Project through multiple channels that are summarized below.
- State Government Portal. The existing mechanism of State Government portal for citizen's grievances and enquires will also cover the Project. HPFD receives regular inputs from this portal on grievances that are to be addressed by the HPFD.
 - Project specific Portal. Project will maintain a portal with dedicated mechanisms for receiving stakeholder grievances. All grievances, feedback and queries received through the project portal will be collated and compiled by the State Social Expert and included in the progress report. The portal will also provide relevant information on the multiple channels that can be used for submitting grievances to the project.
 - Grievance Registers. Grievance Registers will be maintained at District/Block levels to record, track and report on the inflow of stakeholder grievances, enquiries and feedback. The Grievance Registers will help with monitoring and evaluation of the functioning of GRMS.
40. Grievance Process. All grievances, enquiries and feedback received through the multiple channels will be tracked through a grievance log that would be maintained through the MIS. Grievances will be directed to the competent nodal grievance officer at the state, district, and block levels for resolution, with recommended timelines. The concerned Grievance Officer will be responding to the grievance/query through phone calls, meetings and letters, in order to resolve the issues. If needed site visits will be undertaken to appraise the exact nature of the

stakeholder concerns. The Complainant will be made part of the grievance resolution process and kept updated of the resolution process through phone calls and formal letters. Information material on GRM will also inform the stakeholders about grievance escalation hierarchy that would help the complainant to escalate any unresolved issues to higher level officers, as well as the existing state level GRM channels of government portal and grievance committee chaired by the district collectors. The grievance redress process will be a continuous, transparent and participatory process that would be an integral part of the project's accountability and governance agenda.

41. GRM Monitoring and Reporting. The functioning of the GRM will be monitored by the Social Expert in the SPMU and the PD. Status and function of the GRM will be documented and shared by the Social Expert in the SPMU through **quarterly** reports and review meetings. GRMs will also be tracked through the project MIS. GRM Review Meetings will held every three months chaired by the PD and convened by the Social Expert of the SPMU. The Social Expert will be responsible for presenting status of all matters/ grievances received during the last quarter/month, and the action taken to resolve them. The GRM mechanism will be notified to the public and stakeholders within the 1st 6 months of project effectiveness. The project website will be posting the status of the GRM every **month** on the website of the project.

Assistance for aggrieved persons belonging to vulnerable groups for accessing legal recourse

42. If an aggrieved person is not satisfied with the results of grievance redress by the project grievance redress mechanism, such a person can approach the Courts, under the laws of the Country, and the verdicts of the Courts will be final, as per the judicial processes established in India. In general, the legal system is accessible to all such aggrieved persons. However, there might be cases where vulnerable sections face hurdles in accessing the legal recourse system. These hurdles usually include the cost of litigation, knowledge about the legal system, or the lack of awareness about formal legal procedures. To help citizens to access the legal recourse system, each State has an operational mechanism called the Legal Aid Centre, which provides free services including services of lawyers without any cost to the litigants. The social specialist of SPMU will engage with State legal Aid Centre to provide such services to the aggrieved persons. As part of the partnership, the project will reimburse all additional costs that accrue to the State Legal Aid Centres. This facilitation will be available to the aggrieved person(s) if they fulfil the following two conditions: (1) that such aggrieved person(s) belong to any of the following vulnerable sections of the society - below poverty line families, scheduled castes, scheduled tribes; or is disabled, handicapped, orphaned or destitute person; women headed households; and (2) such a person or persons those who have exhausted the provisions of GRM.
43. Grievance Redress Service of The World Bank. In addition to seeking to resolve their grievances through the GRM established at the government level, "communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project such as this operation may also submit complaints to the Grievance Redress Service (GRS) established by the World Bank. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may also submit their complaint to the WB's independent Inspection Panel, after having brought the complaint to the World Bank's attention through its GRS. Information on

how to submit complaints to the World Bank’s Grievance Redress Service is available at <http://www.worldbank.org/GRS>. Information on how to submit complaints to the World Bank Inspection Panel is available at www.inspectionpanel.org.

6.0 Monitoring and Reporting

44. The District Project Officer will be providing regular updates on implementation of the SEP based on information received from block level PIU and endorsed by district level PCU. The SEP will be **annually** revised and updated as necessary in the course of capacity building program implementation in order to ensure that the information presented herein is consistent and is the most recent, and that the identified stakeholders and methods of engagement remain appropriate and effective in relation to the project context and specific stages of the implementation. Any major changes to the project related activities and to its schedule will be duly reflected in the SEP.
45. Reporting. The main instrument for reporting on SEP implementation will be the Bi-annual ESF implementation progress report, which would cover implementation of the ESMF, ESCP as well as the SEP. The biannual report will be based on regular monthly and quarterly updates from the block and district units, and these will include public grievances, enquiries and related incidents, together with the status of implementation of associated corrective/preventative. These periodic updates will provide a mechanism for assessing both the number and the nature of complaints and requests for information, along with the Project’s ability to address those in a timely and effective manner. The project will be using newsletters and communication campaigns/products on the GRM and the SEP status.
46. The SEP update will cover key indicators related to stakeholder meetings, GP meetings, grievances received and resolved, enquiries received, participation of vulnerable people in project activities, stakeholder facing events and publications.

7.0 Budget

47. An estimated amount of INR 90 lacs has been earmarked to cover the costs related with publications, communication material, engagement of resource persons/consultants and organization of stakeholder engagement and meetings. The breakdown is as under:

Activity	Tentative Budget
Public meetings	500,000
Focus group meetings/community consultations	10,00,000
Project website and disclosure in news papers etc.	15,00,000
Direct communication with people	500,000
Road signs and wall writings	15,00,000
Setting up of GRM	500,000
Maintaining Grievance Redress Mechanism	500,000
Publications in local language:	20,00,000

Pamphlets, booklets, short films etc.	
Workshops	10,00,000
TOTAL	90,00,000

Additional resources from the communication, consultancy and training budget will be used for implementing the SEP.

India

**Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)
Design Report**

Annex: Tribal Development Framework

Document Date: 26/02/2021
Project No. 2000003444
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Asia and the Pacific Division
Programme Management Department

Tribal Development Framework

(Revised April 7, 2020)

(Revised April 26, 2020)

**CHHATTISGARH INCLUSIVE RURAL ACCELERATED AGRICULTURE GROWTH
PROJECT**

Department of Agriculture

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Executive Summary

The Government of Chhattisgarh (GoCG) is preparing the Integrated Project entitled Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth (CHIRAAG) for 25 Blocks in 14 Districts of the State for financing from the World Bank. It is a rural transformative project that is premised on the development and optimum utilization of traditional village resources of production through:

- Rivulet regeneration and conservation (Narwa);
- Livestock management and increase production (Garwa);
- Bio-composting (Ghuruwa);
- Nutritional and income-generating support activities through backyard fruits and vegetable (Badi); to transform the village level economy from subsistence level to semi-subsistence farming and then to commercial production.

Project Description

The Project's Objective is to intensify and diversify sources of income, and to improve the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh. The two fundamental pillars of the project are Income and Nutrition. The income for the target farmers/producers is expected to increase through the combination of:

- Diversification and sustainable intensification of production systems
 - developing integrated farming systems – agriculture-horticulture-agroforestry-fishery-livestock, other allied sub-sectors like sericulture, apiculture, etc.), which is more aligned with market demand;
- Productivity increase through infusing modern technology and improving resource infrastructure (water management irrigation/soil health etc.);
- Value addition through post-harvest measures and processing; and
- Better price terms through improved access to local-national-export markets.

On the other hand, Nutrition for the targeted population is expected to be increased through a combination of the following:

- Natural Resource Assessment of the HHs to ensure that each of the targeted HHs should practice one or the other activities: Home-stead food production (for instance pulse and millet plantation, backyard poultry), Nutrition Kitchen Garden (Badi), Bio-floc for fisheries and such other activities;
- Facilitating an increase in the production of nutrient-dense crops and small-scale livestock (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and bio-fortified crops);
- Sensitization towards nutrition information and food recipes to increase the appreciation and use of local nutritious biodiversity to improve dietary diversity;
- Improve processing, storage and preservation to retain nutritional value, shelf-life, and food safety, to reduce the seasonality of food insecurity and post-harvest losses, and to make healthy foods convenient to prepare for domestic consumption;
- Promoting SHGs to develop local nutritionally rich snacks for distribution to the Angadwadi Centers and Schools;

Project Components

CHIRAAG is organized into four, interlinked components: Component 1: Community Empowerment and Institutional Strengthening; Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems; Component 3: Value Addition and Access to Markets; and Component 4: Project Monitoring and Management, Knowledge Management and State Capacity.

Project Beneficiaries

The project will be implemented across 25 blocks in 14 districts. Twenty-three targeted blocks from 12 districts in the northern and southern areas are ST dominated and are remotely placed from the capital city. Two blocks from two districts of the central plain areas are with high SC population.

The project will target 300,000 households from about 1,500 villages. In each district 2-3 blocks will be targeted. Within the selected 25 blocks, the villages will be selected based on proximity, and the *Gauthans* identified¹. Within selected villages, all households will avail themselves of project benefits. The Community-Based Organizations directly eligible to receive project benefits are '*Gauthan committees*', Livelihood Groups and FPOs.

Line Departments that will benefit directly are Department of Agriculture and Biotechnology, Department of Soil and Water Conservation, Department of Horticulture, Department of Livestock, and Department of Fisheries. Other line departments and agencies such as the State Seed Corporation, will be brought in as project implementing units (PIUs), based on their level of engagement in project implementation, as and when such roles emerge.

Indirect beneficiaries of the project are: (a) local private sector, processors and exporters; and (b) national and global value chain actors.

One of the most important criteria for selecting the CHIRAAG intervention blocks is the concentration of tribal and other backward castes in the region as they are the most deprived and excluded category. The objective of selecting them as the major unit on which the intervention will roll out is to ensure that the intended objective of increasing the income through development of sustainable livelihood opportunities is achieved for the most deprived section of the state.

Some of the key observations around this are as follows:

- 58% of the total Target Population across the selected blocks in the CHIRAAG Districts constitute the Tribal Population; 3,35,944 persons.
- In % terms, block-wise, Katekalyan, Bhairamgarh, Sukma, Chhindgarh, Dantewada have the highest tribal population
- However, by persons, block-wise, Patthalgaon, Bakawand, Bastar, Pratappur, Lundra have the highest tribal population, constituting 32% of the total tribal population across selected regions
- District-wise and in person terms, Bastar, Jashpur, Surajpur, Surguja, and Kondagaon have the highest tribal population across the selected blocks and constitute 52% of the total tribal population.

Legal and Policy Framework

The applicable Acts / Policies that are applicable in the project includes (i) Panchayati Raj Act 1953, 73rd Amendment 1994; (ii) Extension of Panchayati Raj to Scheduled Areas (PESA) 1996; (iii) National Policy on Tribal Development, 1999; (iv) 5th Schedule of Constitution (Article 244); (v) Tribal Sub

¹State Government has so far identified 256 *Gauthans* covering 747 villages in the project area. The remaining *Gauthans* are yet to be identified.

Plan; and (vi) Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

Tribal Development Framework

The World Bank's ESS on Indigenous People recognizes that the situation of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities varies from region to region and from country to country. The particular national and regional contexts and the different historical and cultural backgrounds will form part of the environmental and social assessment of the project. In this way, the assessment is intended to support identification of measures to address concerns that project activities may exacerbate tensions between different ethnic or cultural groups.

A key purpose of this ESS is to ensure that the Scheduled Tribe Communities present in, or with collective attachment to, the project area are fully consulted about, and have opportunities to actively participate in, project design and the determination of project implementation arrangements. The scope and scale of consultation, as well as subsequent project planning and documentation processes, will be proportionate to the scope and scale of potential project risks and impacts as they may affect the Tribal Communities present in the project areas.

The state of Chhattisgarh also has five particularly vulnerable tribal groups (PVTGs) that include the *Abujmadia, Baiga, Kamar, Birhor and Hill Korva*. These PVTGs continue to live in dire poverty, with high levels of impoverishment and malnutrition, and limited access to health and nutrition services, which in turn lead to high mortality rates. They practice largely subsistence agriculture and depend on forests for their livelihood. Despite this diversity, tribal communities do have similarities, though broad generic ones. They are known to dwell in compact areas, follow a community way of living, in harmony with nature, and have a uniqueness of culture, distinctive customs, traditions and beliefs which are simple, direct and non-acquisitive by nature.

The project will undertake a screening for tribal populations with the help of tribal community leaders and local leaders. The screening will check for the following:

- (i) Names of tribal groups in the project area of influence.
- (ii) Total number of tribal groups in the project area of influence
- (iii) Percentage of tribal population to that of area population; and
- (iv) Number and percentage of tribal households to be affected/benefitted
- (v) Vulnerability of the tribal groups, especially PVTG and their existing socioeconomic conditions that may further deteriorate due to project impact. If such especially vulnerable groups among the Scheduled Tribal community are identified within the project area, they may need special measures for protecting their socio-cultural identity and livelihoods.

NGOs, Tribal Department (all cluster with tribal population) will be consulted during the planning stage and their broad community support will be documented. In clusters with tribal population in minority, separate consultations with tribal households (women and men) and groups will be organized in every tribal hamlet/ village leader, and tribal-focused NGOs to identify the priorities and strategies for ensuring tribal inclusion in project institutions, interventions and project benefits. Involvement of tribal people groups in problem identification and design of solutions has to be ensured through the entire cycle of project interventions. Weekly/ fortnightly meetings will be organized in tribal hamlets/ villages for information sharing and consultation during the planning stages. Monthly meetings will take place in tribal hamlets/ villages for information sharing and review during the implementation stages minutes of which will be recorded in the CBO records, and reproduced when required (e.g., for monitoring and review purposes). Focused consultations will be organized with tribal farmers on interventions on common lands, rural infrastructure and markets.

Process of Preparing Tribal Development Plan (TDP)

The following steps will be followed:

- Prior to the investment specific Social Assessment (SA), the project will disseminate project information to all stakeholders through various means, , such as community level meetings, mass media, project brochures/posters and a dedicated project site on the internet.
- A screening will be conducted in order to determine if tribal families or communities are present or have collective attachment in the area of influence of the proposed projects. Where tribal communities are found to be present or have collective attachment in the area of influence of the project, it is to note that the ESS 7 will be applicable
- If based on the screening, the Bank concludes that Tribal Peoples are present in, or have collective attachment to, the project area, social assessment will be conducted to evaluate the project's potential positive effects on the tribal Peoples.
- If the screening of an individual subproject identified in the TDF indicates that tribal communities are present in, or have collective attachment to, the area of the subproject, project will ensure that, before the subproject is implemented, a social assessment is carried out and a TDP is prepared in accordance with the requirements of this framework
- The social assessment report and draft TDP will be made available to the affected tribal communities in an appropriate form, manner, and language. Post finalization of the TDP, the document is also made available to the affected tribal communities in the same manner as the earlier draft documents.

The project will have exclusive strategic focus for greater inclusion and representation of tribal in scheduled areas and their active association in project interventions.

Suggested Format for TDP

The suggested format for the TDP is as follows:

- 1) Description of sub projects and implications for the Tribal community
- 2) Gender disaggregated data on number of tribal households
- 3) Social, cultural and economic profile of affected households
- 4) Land tenure information
- 5) Documentation of consultations with the community to ascertain their views about the project design;
- 6) Community development plan based on the results of consultation and assessment
- 7) Modalities to ensure regular and meaningful consultation with the community and participatory approach
- 8) Institutional arrangement and linkage with other national or state level programmes
- 9) Institutional mechanism for monitoring and evaluation of TDP implementation and grievance redress. This chapter should also include institutional mechanism to ensure that project benefits will be shared with the tribal community and that the project activities will not interfere with their way of living and cultural identity. The mechanism should include participation of tribal leaders and representation of tribal administration
- 10) Implementation Schedule and cost estimate for implementation

Monitoring and Evaluation

Throughout the implementation of the project, the Social Experts of PMU and DPCU will monitor the project compliance with ESS 7. At the end of the Project an impact evaluation will be carried out by an independent agency/ consultant to review and assess that implementation is in compliance with agreed and approved TDP.

All implementing agencies will have an TDF focal point that will regularly supervise and monitor TPP implementation. These focal points will report to Project Director on TDF related matters and request the support of the Social Expert if needed. S/he will travel to the sites and spot check if the actions are taken and information provided in conformity with the TDF.

Grievance Redress Mechanism

The Project will establish a Grievance Redress Mechanism (GRM) with the aim to respond to queries or clarifications or complaints about the project and address complaints/concerns and grievances of the stakeholders. The GRM at block and district level will have representation from tribal community and tribal administration.

1.0 Introduction

The Government of Chhattisgarh (GoCG) is preparing the Integrated Project entitled Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth (CHIRAAG) for 25 Blocks in 14 Districts of the State for financing from the World Bank. It is a rural transformative project that is premised on the development and optimum utilization of traditional village resources of production through:

- Rivulet regeneration and conservation (Narwa);
- Livestock management and increase production (Garwa);
- Bio-composting (Ghuruwa);
- Nutritional and income-generating support activities through backyard fruits and vegetable (Badi);

to transform the village level economy from subsistence level to semi-subsistence farming and then to commercial production.

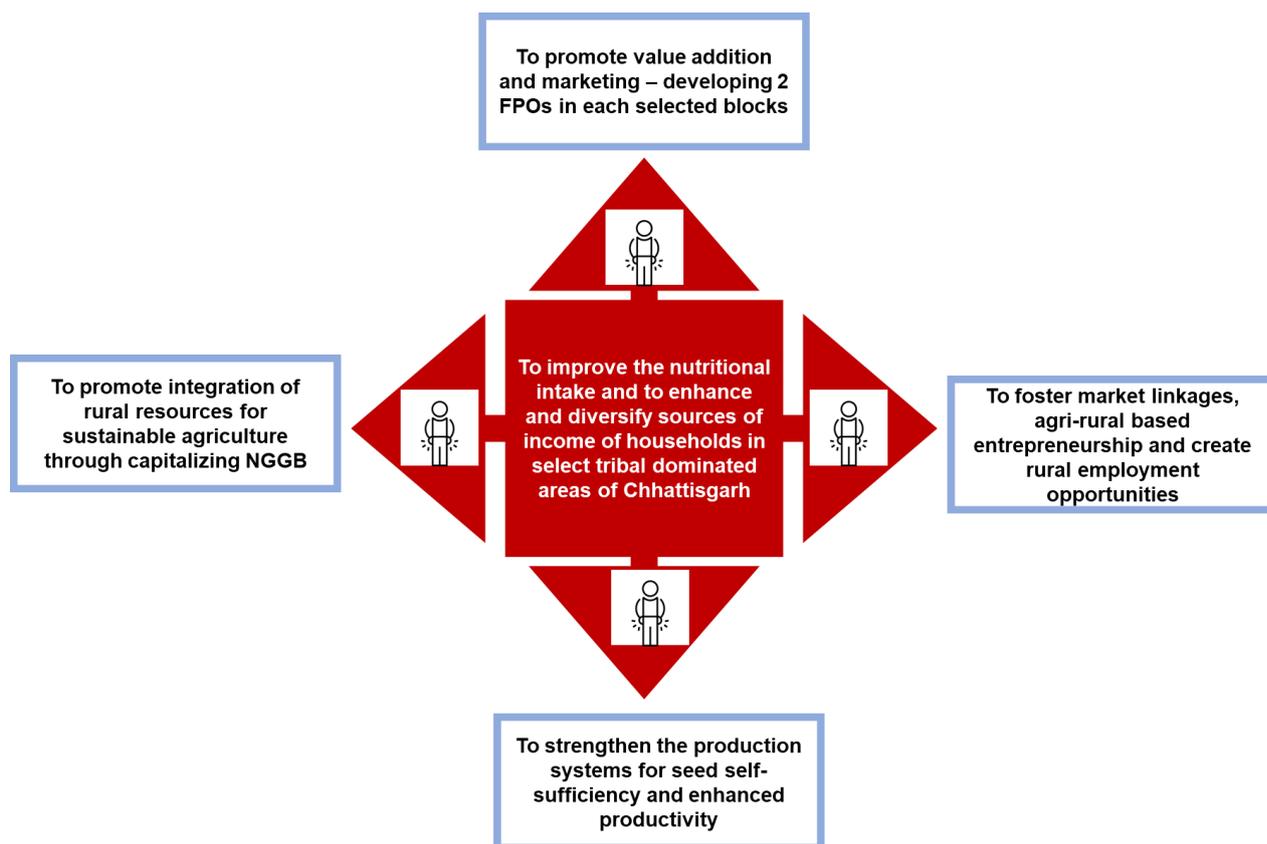
The project envisions to improve the state's agricultural and forest competitiveness in terms of increased production, productivity, with an enhanced focus to water management, livestock development, farm waste management, post-harvest management, storage, marketability and enterprise development for the creation of off-farm employment opportunities. The project fundamentally targets to increase rural household income generation and nutrition intake, with special focus on the tribal population that accounts for 33% of the total population in the state - through the promotion of backyard farming (Badi), sustainable agro-value chain creation, entrepreneurship development amongst rural youth and women and employment generation. It will attempt to build on the existing network of community institutions promoted by Chhattisgarh SRLM and support them in accelerated and inclusive rural transformation.

The proposed Project is to be implemented in 25 Blocks of 14 Districts of Chhattisgarh. The Project will cover almost 30% of the tribal population of the state. Out of the total state-tribal population, about 2.3% of them are classified as PVTGs and these include; *Kamar, Baiga, Pahari Korwa, Birhor, Abujhmadia*.

1.1 Project Description

The Project Development Objective (PDO) is to intensify and diversify sources of income, and to improve the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.

The key objectives that CHIRAAG envisions to achieve through this project are depicted in the figure below:



The two main fundamental pillars of the project are Income and Nutrition. The income for the target farmers/producers is expected to increase through the combination of:

- Diversification and sustainable intensification of production systems
 - developing integrated farming systems – agriculture-horticulture-agroforestry-fishery-livestock, other allied sub-sectors like sericulture, apiculture, etc.), which is more aligned with market demand;
- Productivity increase through infusing modern technology and improving resource infrastructure (water management irrigation/soil health etc.);
- Value addition through post-harvest measures and processing; and
- Better price terms through improved access to local-national-export markets.

On the other hand, Nutrition for the targeted population is expected to be increased through a combination of the following:

- Natural Resource Assessment of the HHs to ensure that each of the targeted HHs should practice one or the other activities: Home-stead food production (for instance pulse and millet plantation, backyard poultry), Nutrition Kitchen Garden (Badi), Bio-floc for fisheries and such other activities;
- Facilitating an increase in the production of nutrient-dense crops and small-scale livestock (for example, horticultural products, legumes, livestock and fish at a small scale, underutilized crops, and bio-fortified crops);

- Sensitization towards nutrition information and food recipes to increase the appreciation and use of local nutritious biodiversity to improve dietary diversity;
- Improve processing, storage and preservation to retain nutritional value, shelf-life, and food safety, to reduce the seasonality of food insecurity and post-harvest losses, and to make healthy foods convenient to prepare for domestic consumption;
- Promoting SHGs to develop local nutritionally rich snacks for distribution to the Angadwadi Centers and Schools;

1.1.1 Project Components

CHIRAAG is organized into four, interlinked components: Component 1: Community Empowerment and Institutional Strengthening; Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems; Component 3: Value Addition and Access to Markets; and Component 4: Project Monitoring and Management, Knowledge Management and State Capacity.

Component 1: Community Empowerment and Institutional Strengthening

This component will build household and community capacity to: (a) plan, implement, and monitor development investments; (b) support and strengthen community institutions toward effective management of natural resources, and community and private assets; and (c) create diet diversity and promote positive nutrition practices at household level.

Subcomponent 1.1 Participatory Village Planning and Community Institution Building

This sub-component will support: (i) socialization of CHIRAAG among communities in project villages through village entry activities that foster social capital and rapport building; (ii) preparation of village development plans through a participatory village planning process; and (iii) formation and/or capacity building of key community institutions to participate in CHIRAAG planning and implementation processes and leveraging of project investments for community and household benefits.

Key activities to be financed under sub-component 1.1 are: (a) social mobilization, IEC and village entry activities; (b) partnership with Indira Gandhi Krishi Vishwavidyalaya to support participatory planning, VDPs and regional diagnostics; (c) hiring of TSA for preparation of VDPs, institution strengthening, capacity building support to *Gauthans*², LGs and CRCs; and (d) recruitment of community cadre for spearhead team, including training, exposure, honorarium.

Sub-component 1.2 Household Food Availability and Nutrition Practices

Women's empowerment (including women's control of economic resources) is linked closely to nutritional status and can result in decreased malnutrition³. Beneficiary communities and households will be empowered to plan and consume diverse, locally available and nutritious foods in their households. Support will be provided to households in the adoption of positive nutrition and related practices, thereby leading to improved nutrition outcomes.

Key activities to be financed under sub-component 1.2 include: (i) context (at village level) assessment for design of nutrition interventions; (ii) adaptive research, development of SBCC content, design of nutrition module along the lines of SBCC for IFS Field Schools, materials development and rollout; (iii) development of SBCC tool kit for village level facilitation, training manuals and IEC material -

² An informal body comprised of village elders and representatives from community organizations from villages in the catchment of an existing *Gauthan* will be created.

³ IFPRI Discussion Paper 01681, October 2017 'Nutrition-Sensitive Agriculture: What Have We Learned and Where Do We Go from Here?' by Marie T. Ruel Agnes et.al., Poverty, Health and Nutrition Division

flipbooks, posters, films and community-led videos by resource agencies; (iv) recruitment and capacity building of *Poshan Sakhi*; and (v) need-based initiatives to empower the community to identify and manage its severely malnourished children, with the help of frontline workers. In alignment with Lighthouse India, learning from other states such as Bihar, Andhra Pradesh, Maharashtra, Kerala will be applied to a rapid adaptation of approaches that would be effective in Chhattisgarh.

Component 2: Diversified, Resilient and Nutrition-Supportive Food and Agriculture Systems

Markedly different from other population segments, tribal livelihoods, notably in remote, forest-fringe areas, continue to be subsistence-orientated with high dependence on natural resources over markets. This component aims to sustainably develop and leverage natural resources as a foundation for developing food and agriculture systems which are more diversified, nutritive and productive, and more resilient to climate change. Optimal use of natural resources for food, feed and energy requirements will help build household resilience to climate shocks while integrated food and agriculture systems will augment and intensify production systems following resource-efficient conservation agriculture principles for a range of food and agriculture commodities to ensure household nutrition security.

Sub-component 2.1 Community-Based Natural Resource Management (CBNRM)

This sub-component will support development, optimum utilization and sustainable management of three key natural resources (water, soil and biodiversity) using a blend of traditional local knowledge, community-based management systems and modern technologies.

Key activities to be financed under sub-component 2.1 include: (a) investments in water harvesting, lifting and farm level irrigation infrastructure; (b) soil nutrient analysis and soil nutrition management technology demonstrations and farmer training; (c) TSA⁴ for incorporating CBNRM in VDP; (d) partnerships with the local agriculture university for technology demonstration and capacity building, and DST to develop GIS-based landscape maps; (e) agro-biodiversity investments particularly conservation of local seeds and planting materials through village seed banks.

Subcomponent 2.2: Integrated Food and Nutrition Supportive Agriculture

This sub-component will finance interventions for developing Integrated Farming Systems (IFS), supporting infrastructure and district and state capacity to deliver essential inputs. IFS will not only meet the input⁵ requirements of various systems (crop/soil, animal, fish), but also de-risk climate shocks through broadening the production system across agriculture, horticulture, fishery and livestock.

Key activities to be financed under sub-component 2.2 are: (a) **Household IFS production systems:** Grants to LGs as revolving fund for financing household level investments (through onward low interest loans to members) in productive assets and adoption of climate smart technologies and practices as per VDPs; (b) **Community capacity and infrastructure:** (i) Grants and technical support to *Gauthans* for financing infrastructure and activities of the CRC; (ii) training and capacity building for INRM, IFS, CSA, Integrated Nutrition Management, and crop specific Package of Practices; (iii) inputs for homestead food production, individual and community *baadi*, backyard poultry, fishery and small ruminants; (iv) cadre honorarium; (c) **District/sub-district level capabilities:** (i) strengthening capacity of KVKs and government departments/agencies with budget to: establish mother nursery, brood hatchery, units for bio-inoculants/IPM inputs; *baadi* model units; training and exposure visits of producers/collectors/community cadres/project staff; nutrition-supportive food production calendars based on local agro-climatic conditions and market demands; protocols for IFS, post-harvest management practices etc. and supply of inputs to project sites on demand; (d) **State level capabilities:** (i) Strengthening capacity of departments of agriculture and horticulture and budget for scaling up seed production of pulses, millets, oilseeds and other underutilized crops; and (ii) strengthening participation

⁴ Same TSA conducting VDP.

⁵ Integrated production systems use some outputs (e.g. by-products) and services of one production component as input to another within the farm unit. FAO.

of local agriculture universities for seed production through supply of breeder seeds and revival of locally adapted seeds, demonstration of climate smart technologies/inputs, and preparation of economic and management models for *Gauthans*.

Component 3: Value Addition and Access to Market

This component aims to increase household income through value addition, processing, equitable market access and reduced post-harvest losses. A focus on crops of high nutritional value will also improve health indicators through home consumption and improve access to profitable wellness markets for surplus produce. These results will be achieved through (a) promotion of safe food preservation and storage methods; (b) primary processing and value addition for local consumption; (c) supporting FPOs for aggregation, primary processing, value chain development in select commodities through public and private partnerships; and (d) upgradation of local market infrastructure and strengthening community capacities. Subcomponents and activities supported under this component are:

Subcomponent 3.1 Value Addition for Nutrition

This sub component aims to address the negative impacts of food loss or wastage and increase the availability of nutritious food at household level year-round, with excess production of nutritious foods to be available for local markets, and for the members enrolled at Integrated Child Development Services, Midday Meal and local schools.

Key activities to be financed under sub-component 3.1 include: (a) village level infrastructure support to LGs for post-harvest, primary processing, packaging and storage; (b) TSA support for infrastructure and technology investment in common service centers, rural *haats*, storage etc. and for strengthening community capacity in value addition technology, processes and small food businesses; and (c) training of LGs, SHGs and other community groups in local value addition.

Subcomponent 3.2: Value Addition and Accessing Profitable Markets

Local value addition and access to profitable markets is expected to help realize higher returns to the small producers and create local job opportunities. This sub-component will mobilize small producers into FPOs (Producer Companies or Cooperatives as per local context and preference of the producers) at the cluster (Block/District) levels for aggregation, value addition and accessing profitable markets.

Key activities to be financed under sub-component 3.2 are: (a) hiring of TSA to establish VCDC, and market linkage; (b) TSA for institution and capacity building of FPOs, business plan development including guidelines, manuals, training, exposure visits etc.; (c) provision of business plan grants to FPOs (post-harvest infrastructure, working capital, technology, business operation set up, access to market); (d) TSAs for value chain analysis in select commodities; (e) market support activities including certification (organic, fair trade), traceability, packaging, branding; (f) promotion activities, IEC, and workshops/ events, PPCP, partnerships, market intelligence etc.

Component 4: Project Monitoring and Management, Knowledge Management and State Capacity

Sub-component 4.1 Project Monitoring and Management

This sub-component will support project coordination, implementation, financial management, procurement, and environmental and social safeguards management at the State, Regional, District, Cluster and community levels. A State Project Management Unit (SPMU) will be established and staffed with the participation of Departments of Agriculture, Farmer Welfare and Biotechnology (DoAB), Horticulture, Livestock and Fisheries. The SPMU will be responsible for project implementation, in accordance with the agreed Project Implementation Plan (PIP), Community

Operations Manual (COM), Project Agreement, Loan Agreement, the Environment and Social Management Framework and Commitment Plans, and World Bank's fiduciary policies. The SPMU will also establish project management teams at District and Block levels, which will implement the project activities, and have a direct reporting line to the SPMU.

Key activities to be financed under sub-component 4.1 are: functioning of a monitoring, evaluation and learning cell within SPMU; commissioning studies (baseline, mid-line, end-line) and reports; ICT and GIS-enabled MIS at State, District and Block levels; thematic and process monitoring studies; and learning workshops on project activities, as required.

Sub-component 4.2 Knowledge Management and State Capacity: The project will promote knowledge exchange between various stakeholders besides accessing up to date knowledge from local, national, and international organizations. The project will strengthen State capacity through the sharing of new information and knowledge in a similar development context from other States/countries. The project will support the creation of an ecosystem to capture, preserve and scale the traditional knowledge and practices of tribal communities relevant to the project scope. The project will fill this gap by strengthening local institutions such as Indira Gandhi Krishi Viswa Vidyalaya (IGKVV), KVK etc. It will facilitate the process of exchange within and between communities, states, south-south countries and between developing and industrial countries. This will include operational activities, such as identification and validation of Tribal Traditional Knowledge (TTK), integration or refinement with scientific knowledge, documentation and packaging of tacit and explicit knowledge, maintaining repositories and dissemination of knowledge. For wider community level adoption of new knowledge, information (relevant TTKs and those finetuned with modern scientific knowledge) and promotion of innovations, particularly to drive household nutrition and augment income of youth and women, the project will invest in awareness campaigns, conducting TTK melas, exposure visits etc. Emphasis will be given to tribal to tribal knowledge exchange by facilitating the ideas and information to flow across the region. Further, considering the provisions of the PESA Act, the project will strengthen community institutions to not only comply with the provisions of the Act, but also to make it more participatory and inclusive.

Key activities to be financed under sub-component 4.2 include: (a) TSAs for preparation of GIS-based landscape plans for project blocks; ICT systems and infrastructure for MIS; (b) knowledge partnerships, events, conferences, bilateral meetings, workshops etc.; (c) an integrated dash board at State level for planning and implementation monitoring at district, block and village levels, including ICT-GIS driven systems, mobile applications etc.; (d) building techno-managerial capacity of the department at State, District and Block levels through training at national/international institutes i.e. IIM (Raipur), Administrative Staff College of India, Centre of Good Governance etc.; (e) agriculture fair, exposure visits (for producers), study trips for officials, specialized courses, refresher training, workshops, events etc. and (f) district level workshops for convergence and capacity building.

1.2 Project Beneficiaries

The project will be implemented across 25 blocks in 14 districts. Twenty-three targeted blocks from 12 districts in the northern and southern areas are ST dominated and are remotely placed from the capital city. Two blocks from two districts of the central plain areas are with high SC population.

The project will target 300,000 households from about 1,500 villages. In each district 2-3 blocks will be targeted. Within the selected 25 blocks, the villages will be selected based on proximity, and the *Gauthans* identified⁶. Within selected villages, all households will avail themselves of project benefits.

⁶State Government has so far identified 256 *Gauthans* covering 747 villages in the project area. The remaining *Gauthans* are yet to be identified.

The Community-Based Organizations directly eligible to receive project benefits are ‘*Gauthan committees*’, Livelihood Groups and FPOs.

Line Departments that will benefit directly are Department of Agriculture and Biotechnology, Department of Soil and Water Conservation, Department of Horticulture, Department of Livestock, and Department of Fisheries. Other line departments and agencies such as the State Seed Corporation, will be brought in as project implementing units (PIUs), based on their level of engagement in project implementation, as and when such roles emerge.

Indirect beneficiaries of the project are: (a) local private sector, processors and exporters; and (b) national and global value chain actors.

2.0 Socio-Economic Condition of the Tribal in Chhattisgarh

The Environment and Social Assessment carried by the Project have identified the following:

- The northern and southern parts of the state that are also tribal dominated have higher poverty rates. Nearly 51 percent of ST households in Chhattisgarh were below the poverty line in 2011-12 compared to an average of 43 percent for such households across India.
- Human development indicators is also low among ST population. Rural communities, especially ST households in the southern and northern region of the State continue to suffer from malnutrition, poor health, acute poverty and high rates of school dropouts.
- A disaggregation by background characteristics reveals that women and children belonging to ST households are worse off on education, nutrition and health related indicators.
- On nutrition related indicators, the tribal dominated Bastar district in southern Chhattisgarh records the highest percentage of under-five children who are wasted (33 percent). Narayanpur at 49 percent and Dakshin Bastar (Dantewada) at 52 percent – also in the southern tribal dominated belt – record the highest percentage of under-five children who are stunted and underweight, respectively.
- Basic service delivery systems in terms of health remain largely inadequate, especially in tribal dominated districts. The inadequacy of critical infrastructure such as health facilities, can explain in part the poor health and nutrition outcomes as indicated above. Non-availability of general physicians was an acute problem, with only 13 physicians in position as against the 163 sanctioned. The only respite was the availability of Auxiliary Nurse Midwives (ANM) in sub-centres and PHCs, which far exceeded their requirement. All of these indicators were much worse in the tribal dominant districts of the south and the north.
- The tribal districts in the South are also affected by insurgency/left wing extremism. According to provisional data by the Ministry of Home Affairs, Chhattisgarh has been the worst affected state, accounting for nearly two in every five of the extremist related incidents and 51 percent of fatalities across India.
- Maternal Mortality in the state remain quite high, with the average MMR for India being 130. One of the reasons for such high mortality is that the percentage of institutional births in the state remains lower than the national average (around 70 percent compared to 79 percent for India).
- The tribal dominated northern and southern districts also are locked in a low economic productivity trap. Infrastructure development, industrial and agricultural growth remain restricted largely to the central plain areas. The State also has a low cropping intensity (188 percent against 142 percent for India) and very low agricultural productivity (2,101 kg/ha as opposed to 4,409 kg/ha in Punjab). Further, the production systems in the southern plateau and northern hilly areas remain dependent primarily on rains. While 20-60 percent of household income is dependent on NTFP collection, only 25 percent of the NTFP gathered is sold to other States, that too without adding substantial value. The processing clusters that exist do so mostly in the central region of the state.

- At the household level, similarly, tribal households and their children are among the most vulnerable on indicators of nutrition and health. Tribal children tend to be more stunted, wasted and underweight than other children, on average, and tribal women and girls tend to be more anemic.
- Only 18 percent of ST households said they had drinking water on their premises in 2012, compared to 65 percent of non ST/non SC households. Households practising open defecation among the STs was also unusually high (84 percent in 2011-12 compared to 24 percent for non ST/non SC households).
- The sex ratio of Chhattisgarh is higher than the national average. The child sex ratio among tribals is the best in the country (around 993 females for every 1000 males) significantly higher than the average recorded for the State (969) and the average for India (919).
- The incidence of violence including sexual and physical violence and domestic violence is highest among Dalits (SCs) and tribals. Thirty-nine percent tribal women have ever experienced physical violence since the age of 15 years. On incidence of domestic violence specifically, against the national average of 39.7 percent, 47 percent tribal women experience domestic violence.

Despite the dismal picture, there are also some positives to the narrative of Scheduled Tribe development in Chhattisgarh. Female labor force participation levels in the state are higher than in most states (55 percent) and higher than the average for India (31 percent), as recorded in 2011-12 (Figure 12 shows rural female workforce participation rates for all districts in the state as per the Census⁷). They are even higher for women living in the ST dominated districts of south Chhattisgarh. This is because traditionally tribal men and women have had equal access to land and they complement each other in their labor relations with the land, with more women being seen as farmers in their own right. Again, this practice is changing gradually, as more tribals face land alienation, and overall female labour force participation in rural areas (as per the NSS) has declined from 71 to 61 percent between 2005 and 2012, but this has been compensated by a rise in urban female labour force participation rates in the state which have increased from 25 to 34 percent over the same period. It is also a positive trend that, 90.5 percent women are participating in household decisions, which is significantly higher than the national average of 84 percent.⁸

One of the most important criteria for selecting the CHIRAAG intervention blocks is the concentration of tribal and other backward castes in the region as they are the most deprived and excluded category. The objective of selecting them as the major unit on which the intervention will roll out is to ensure that the intended objective of increasing the income through development of sustainable livelihood opportunities is achieved for the most deprived section of the state.

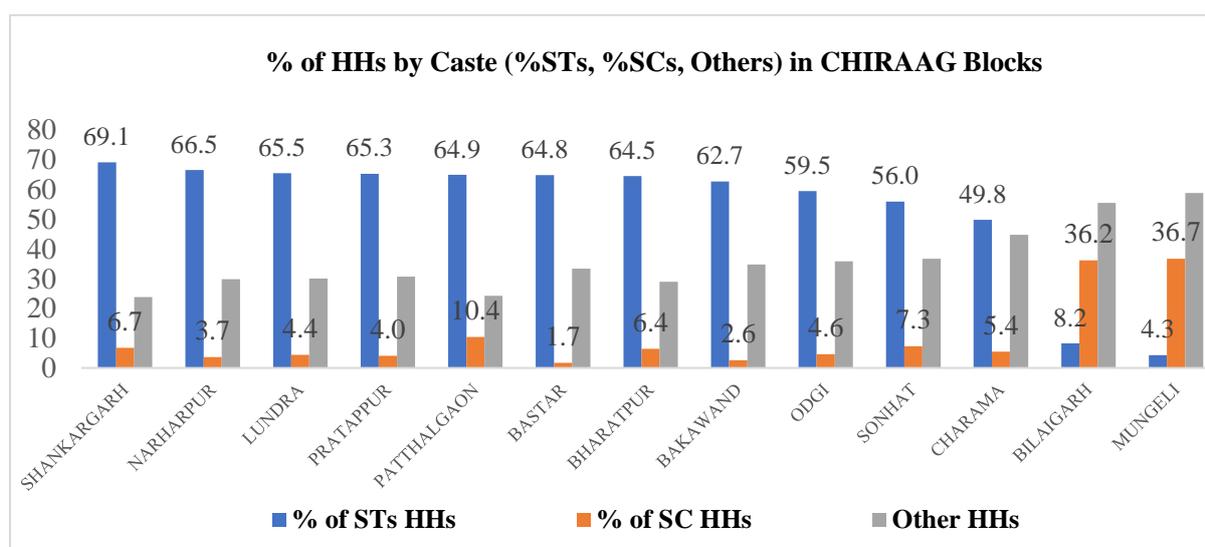
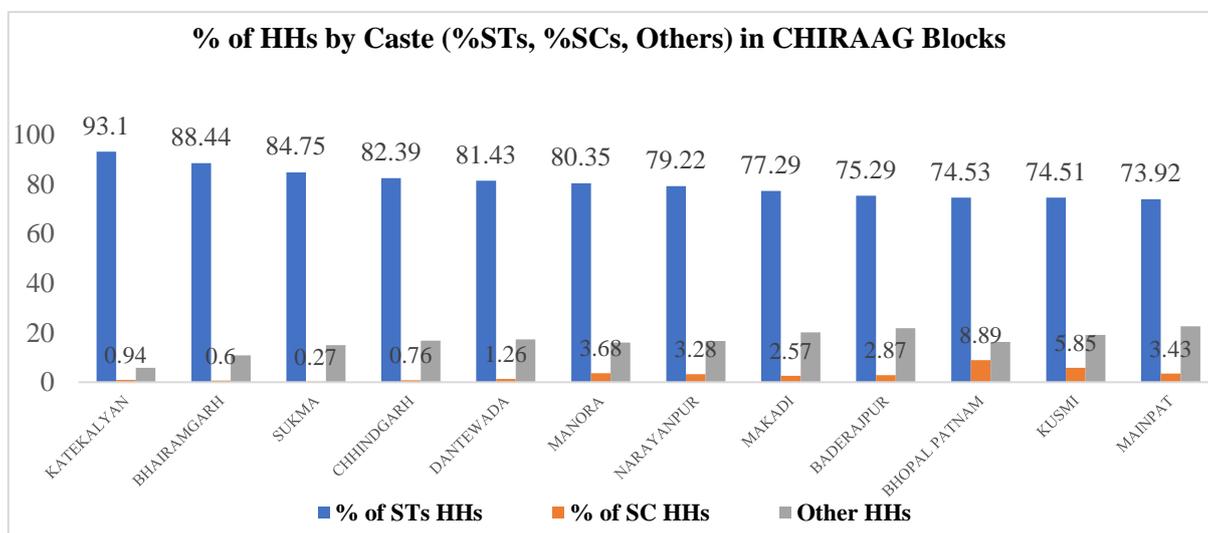
Some of the key observations around this are as follows:

- 58% of the total Target Population across the selected blocks in the CHIRAAG Districts constitute the Tribal Population; 3,35,944 persons.
- In % terms, block-wise, Katekalyan, Bhairamgarh, Sukma, Chhindgarh, Dantewada have the highest tribal population

⁷ These figures are lower than the female labour force participation rates for Chhattisgarh as estimated by the NSS. This is because the Census unemployment estimates are far higher than the NSS estimates because they also include students and persons primarily engaged in domestic duties who are seeking work.

⁸ International Institute of Population Sciences (IIPS). (2017). National Family Health Survey (NFHS-4), India, 2015-16, State Factsheet-Chhattisgarh. Mumbai: IIPS. Available online at: http://rchiips.org/NFHS/pdf/NFHS4/CT_FactSheet.pdf, Accessed on 19 January, 2020.

- However, by persons, block-wise, Patthalgaon, Bakawand, Bastar, Pratappur, Lundra have the highest tribal population, constituting 32% of the total tribal population across selected regions
- District-wise and in person terms, Bastar, Jashpur, Surajpur, Surguja, and Kondagaon have the highest tribal population across the selected blocks and constitute 52% of the total tribal population.



3.0 Legal and Policy Framework

Applicable National and State regulations and the World Bank E&S Standards need to be considered for preparation and implementation of tribal development plan addressing issues of tribal community and their cultural aspects. The section lists out applicable Acts / Policies that are applicable in the project.

Acts/Rules/Policy	Explanation	Relevance to the Project
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<p>Panchayati Raj Act 1953, 73rdAmendment 1994</p>	<p>The act leads towards village governance and establishes the bottom up approach. The Panchayati Raj Institutions considered as self-Government for rural areas whether at the level of a village or a block or a district. They are responsible for preparation of plans for the development programs include drinking water, minor irrigation, rural sanitation, natural resources management and other socio-economic and so on, mobilization of resources for relief during natural calamities, removal of encroachments on public properties, organizing voluntary labour and contribution for community works and maintenance of essential statistics of villages.</p>	<p>Applicable for CHIRAAG as during the implementation of the project activities require institutional support at different levels. This Act will facilitate support for the active participation of the village communities and other democratic institutions that may yield the effective outcomes of interventions.</p>
<p>Extension of Panchayati Raj to Scheduled Areas (PESA) 1996</p>	<p>The Act provides for extension of the provisions of Part IX of the Constitution relating to the Panchayats to Scheduled Areas. The Act allows greater recognition to tribal economic and sociocultural systems, autonomy for local governance and control over natural resources in scheduled areas of the country. Every Gram Sabha shall: i). approve of the plans, programs and projects for social and economic development before such plans, programs and projects are taken up for implementation by the Panchayat at the village level; ii). be responsible for the identification or selection of persons as beneficiaries under the poverty alleviation and other programs</p>	<p>Any project intervention should honour and maintain the autonomy of the tribal. Applicable as project needs to take prior informed consent for project interventions, to ensure that livelihood enhancement interventions are socially acceptable. Introduction of new crops/ technologies /food crops should take into consideration their cultural preferences. The project needs to ensure that tribal communities participate in project activities and there will be no adverse impacts on local tribal groups.</p>
<p>National Policy on Tribal Development, 1999</p>	<p>The policy seeks to bring scheduled tribes into the mainstream of society through a multi-pronged approach for their all-round development without disturbing their distinct culture. Development and empowerment of STs is enshrined in the Constitution and the tribal subplans included covered under the Five Year Plans.</p>	<p>This policy will be applicable to project activities in tribal dominated districts. The need is to ensure that tribal communities participate in the project activities and there are no adverse impacts on local tribal groups. The policy is applicable in the tribal districts. The project interventions</p>

		should be dovetailed with the Tribal Development Sub Plan in order to facilitate the achievement of its objectives of the sub plan.
Tribal Sub Plan	Under TSP, all funds from various programs are pooled and used strategically to support the socioeconomic development of tribal within a specified period.	The project intends to invest in upgrading agriculture, NTFP and small livestock processing and marketing infrastructure in different districts. There is a need for working with the Tribal Development Department to ensure that project benefits are accessed by the tribal communities.
Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	The Act provides three kinds of rights to Scheduled Tribes and Other Traditional Forest Dwellers: Land Rights: Right to continue cultivating land (less than or equal to four hectares) where they have been cultivating prior to 13 December 2005. Use Rights: Provides for rights to use and/or collect a) minor forest produce (tendu patta, herbs, medicinal plants) that has been traditionally collected, b) Grazing grounds and water bodies, c) Traditional areas of use by nomadic or pastoralist communities Right to protect and conserve: Gives the community the right to protect and manage the forest.	This Act is particularly relevant, and will be applicable to the districts with large proportion of tribal population. Where agricultural improvement investments are made on lands inhabited by tribals the project will not question the ownership of their lands.
5th Schedule of Constitution (Article 244)	Provides for the administration and control of Scheduled Areas and Scheduled Tribes. Article 244(1) and Article 244 (2) of the constitution of India enables the government to enact separate laws for governance and administration of the tribal areas. In pursuance of these articles, President of India had asked each of the state to identify tribal dominated areas. Areas thus identified by the states were declared as Fifth schedule areas	For sub-projects planned in Scheduled Areas

4.0 Tribal Development Framework

The World Bank's ESS on Indigenous People recognizes that the situation of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities varies from region to region and from country to country. The particular national and regional contexts and the different historical and cultural backgrounds will form part of the environmental and social assessment of the project. In this way, the assessment is intended to support identification of measures to address concerns that project activities may exacerbate tensions between different ethnic or cultural groups.

The **purpose** of Tribal Development Framework is to establish the requirements, organizational arrangements and design criteria to be applied to subproject or project components to be prepared during sub project implementation

The Objectives of the Standard are as follows:

- To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Under-served Traditional Local Communities.
- To avoid adverse impacts of projects on Indigenous Peoples/Sub-Saharan African Historically Under-served Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts.
- To promote sustainable development benefits and opportunities for Indigenous Peoples/Sub-Saharan African Historically Under-served Traditional Local Communities in a manner that is accessible, culturally appropriate and inclusive.
- To improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the Indigenous Peoples/Sub-Saharan African Historically Under-served Traditional Local Communities affected by a project throughout the project's life-cycle.
- To obtain the Free, Prior, and Informed Consent (FPIC) of affected Indigenous Peoples/Sub-Saharan African Historically Under-served Traditional Local Communities in the three circumstances described in this ESS.
- To recognize, respect and preserve the culture, knowledge, and practices of Indigenous Peoples/Sub-Saharan African Historically Under-served Traditional Local Communities, and to provide them with an opportunity to adapt to changing conditions in a manner and in a time-frame acceptable to them.

A key purpose of this ESS is to ensure that the Scheduled Tribal Communities present in, or with collective attachment to, the project area is fully consulted about, and have opportunities to actively participate in, project design and the determination of project implementation arrangements. The scope and scale of consultation, as well as subsequent project planning and documentation processes, will be proportionate to the scope and scale of potential project risks and impacts as they may affect the Tribal Communities present in the project areas.

5.0 Tribal Development Framework for CHIRAAG

Any intervention that aims to target tribal households or districts in the state, must recognize that the Scheduled Tribes are not entirely homogenous. In fact, the heterogeneity among the tribes is quite distinct with each tribe being quite different from the other in terms of language and dialect, customs, cultural practices and life style. *Gond, Bhunjia, Baiga, Bisonhorn Maria, Parghi, Muria, Halba, Bhatra, Parja, Dhurva, Muriya, DandamiMariya, Dorla, Dhanwar, Kol, Korwa, Rajgond, Kavar, Bhaiyana, Binjwar, Savra, Manji, Bhayna, Kamar, Munda and Abujmaria* are some of the prominent tribes of Chhattisgarh.

The state of Chhattisgarh also has five particularly vulnerable tribal groups (PVTGs) that include the *Abujmardia, Baiga, Kamar, Birhor and Hill Korva*. These PVTGs continue to live in dire poverty, with high levels of impoverishment and malnutrition, and limited access to health and nutrition services, which in turn lead to high mortality rates. They practice largely subsistence agriculture and depend on forests for their livelihood. Despite this diversity, tribal communities do have similarities, though broad generic ones. They are known to dwell in compact areas, follow a community way of living, in harmony with nature, and have a uniqueness of culture, distinctive customs, traditions and beliefs which are simple, direct and non-acquisitive by nature.

The project will be implemented across 25 blocks in 14 districts. Twenty-three targeted blocks from 12 districts in the northern and southern areas are ST dominated and are remotely placed from the capital city. Two blocks from two districts of the central plain areas are with high SC population. The project does not envisage any adverse impact on tribal community. Given the high poverty rate among tribes, the community only benefit from the proposed project. The positive impacts of the project include:

- Participation of tribal community in decision making process especially in village planning
- Strengthening of community institutions will help tribal community in effective management of community and private assets;
- Employment opportunities through recruitment of community cadre for spearhead team.
- Tribal communities and households empowered to plan and consume diverse, locally available and nutritious foods in their households.
- Tribal Households adopting positive nutrition and related practices, thereby leading to improved nutrition outcomes.

However, if social mobilization is not properly carried out and needs of the tribal community is not properly assess, the project may have following risks / adverse social impacts:

- Landless and Small and marginal tribal farmers may get excluded from decision making process and beneficiary list
- Lack of participation of marginalized tribal farmers
- Lack of land title may be an hinderance for tribal women getting benefits
- Lack of access to credit / financing
- Lack of access to market leading to loss of income

The project will undertake a screening for tribal populations with the help of tribal community leaders and local leaders. The screening will check for the following:

- (vi) Names of tribal groups in the project area of influence.
- (vii) Total number of tribal groups in the project area of influence
- (viii) Percentage of tribal population to that of area population; and
- (ix) Number and percentage of tribal households to be affected/benefitted

- (x) Vulnerability of the tribal groups, especially PVTG and their existing socioeconomic conditions that may further deteriorate due to project impact. If such especially vulnerable groups among the Scheduled Tribal community are identified within the project area, they may need special measures for protecting their socio-cultural identity and livelihoods.

5.1 Free, Prior and Informed Consultation with the tribal communities

NGOs, Tribal Department (all cluster with tribal population) will be consulted during the planning stage and their broad community support will be documented. In clusters with tribal population in minority, separate consultations with tribal households (women and men) and groups will be organized in every tribal hamlet/ village leader, and tribal-focused NGOs to identify the priorities and strategies for ensuring tribal inclusion in project institutions, interventions and project benefits. Involvement of tribal people groups in problem identification and design of solutions has to be ensured through the entire cycle of project interventions. Weekly/ fortnightly meetings will be organized in tribal hamlets/ villages for information sharing and consultation during the planning stages. Monthly meetings will take place in tribal hamlets/ villages for information sharing and review during the implementation stages minutes of which will be recorded in the CBO records, and reproduced when required (e.g., for monitoring and review purposes). Focused consultations will be organized with tribal farmers on interventions on common lands, rural infrastructure and markets.

Meaningful Consultation Framework

In CHIRAG project, tribal community is not the only beneficiary, therefore, project has been designed to ensure that tribal community has equitable access to project benefits. The concerns or preferences of tribal Communities will be addressed through meaningful consultation and project design, and documentation will summarize the consultation results and describe how tribal Communities' issues have been addressed in sub project design. Arrangements for ongoing consultations during implementation and monitoring will also be described. The following will be taken into account while conducting consultations with the tribal community:

- ✓ Since out of 25 project blocks, 23 are predominantly tribal and rest two are scheduled caste dominated, the project will prepare a time-bound plan, setting out the measures or actions proposed addressing all beneficiaries of the project and incorporating necessary information relating to the tribal Communities.
- ✓ Though project does not envisage any adverse impact on tribal community, project will explore alternatives to avoid any kind of adverse impact on tribes.
- ✓ Involve tribal leaders and representatives of tribal administration in decision making and, where appropriate, other community members;
- ✓ Project will share project information at least 7 days in advanced for meaningful consultation and informed decision-making;
- ✓ The consultations with the tribal will be in a culturally appropriate format and local language
- ✓ Allow for tribal communities' effective participation in the design of sub project that could potentially affect them either positively or negatively.
- ✓ Since project will be implemented all over the state, the consultation will be carried out with the representatives of tribal administration
- ✓ Since there are several tribal groups, during the consultation process project will allow requested timeframe for internal decision-making processes to reach conclusions that are considered legitimate by the majority of the concerned participants. The project will take into account different viewpoints and opinions of tribal groups.
- ✓ The consultations will begin early in the sbu project planning process to gather initial views on the project proposal and inform the design;
- ✓ The consultation will be a continues process; the minutes of the meetings will be documented by the project and shared with the tribal community in local language
- ✓ To the extent possible, consultations will be built upon the existing institutions (if any).

Challenges and Strategies of Working with Primitive Tribal Groups

- Less landholding
- Less productivity
- Nature of renting (unstable)

Some of the Strategies to be followed include:

- NTFP based activities through agro forestry could be promoted
- Cooperatives for reducing stress selling in cow-pea and mountain-based maize
- Clusterization of their community groups.

Given the over-whelming majority of tribal in the small and marginal farmer category, agriculture and technological interventions introduced by CHIRAAG will be customized for greater applicability and relevance for smallholders, including tribal farmers. Any selection of technology, inputs, seed variety, crops will be done on the basis of consultations with tribal and non-tribal groups.

5.2 Process of Preparing Tribal Development Plan (TDP)

Steps for Preparation of TDP

<i>Sl. No.</i>	<i>Action</i>	<i>Responsibility</i>
1	<i>Information disclosure</i> Prior to the investment specific Social Assessment (SA), the project will disseminate project information to all stakeholders through various means, , such as community level meetings, mass media, project brochures/posters and a dedicated project site on the internet.	PMU / DPCU
2	<i>Screening</i> A screening will be conducted in order to determine if tribal families or communities are present or have collective attachment in the area of influence of the proposed projects. Where tribal communities are found to be present or have collective attachment in the area of influence of the project, it is to note that the ESS 7 will be applicable and the following steps will be taken even if no negative impact is likely to occur. The identification of tribal families/communities will be as per ESS 7. The determination as to whether a group is to be defined as Tribal peoples is made by reference to the presence (in varying degrees) of four identifying characteristics: <ul style="list-style-type: none"> ▪ Self-identification as members of a distinct tribal cultural group and recognition of this identity by others; ▪ Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; ▪ Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and ▪ Any tribal language, often different from the official language of the country or region. 	PMU/DPCU/ Independent consultant
3	<i>Social Assessment (SA) and Consultation with the Tribal⁹</i> If based on the screening, the Bank concludes that Tribal Peoples are present in, or have collective attachment to, the project area, social assessment will be conducted	PMU / DPCU/ Independent Consultant

⁹ Free Prior Informed Consent is not required in this project as tribal community will not be adversely impacted. The Borrower is required to obtain FPIC of the affected tribal community when project will (a) impact lands and natural resources traditionally owned, used, or occupied by tribes; (b) cause relocation of tribal community; or (c) have significant impacts on tribal community's cultural heritage. The Borrower will document the mutually accepted process as well as

	<p>to evaluate the project’s potential positive effects on the tribal Peoples. The social assessment will:</p> <ul style="list-style-type: none"> • Identify key stakeholders among tribal community and establish an appropriate framework for their participation in the selection, design, implementation, and monitoring and evaluation of the relevant project activities; • Assess the demographic, socioeconomic, cultural and other relevant characteristics of ethnic population on and near the project sites, establish social baseline and identify potential barriers to their full participation in benefiting from project activities; • Review relevant legal and institutional framework applicable to tribal community; • Based on assessment and free, prior, and informed consultation propose specific measures to ensure that affected tribal people will, meaningfully and in a culturally appropriate manner, participate in project activities and benefit from the project. The measures and actions to be developed under each sub-project to benefit tribal should be in consultation with them. The TDP should annex the minutes of consultation and present the key findings in the main text of the TDP along with the timing for such consultations and finalization of sub-project specific activities as agreed with the community and tribal leaders. • Develop institutional arrangements and implementation procedures to assist tribal farmers to voice grievances and have them addressed in ways that are socially sound, in line with the procedures described in this TDF. • Any sub project that results in any kind of adverse impact on tribal community / families will not be considered for financing under CHIRAG. • The breadth, depth, and type of analysis in the social assessment shall be proportional to the nature and scale of the proposed project’s potential effects on the tribal community, whether such effects are positive or adverse. 	
4	<p><i>Preparation of Sub-project specific TDPs:</i> If the screening of an individual subproject identified in the TDF indicates that tribal communities are present in, or have collective attachment to, the area of the subproject, project will ensure that, before the subproject is implemented, a social assessment is carried out and a TDP is prepared in accordance with the requirements of this framework.</p>	PMU / DPCU
5	<p><i>Disclosure:</i> The social assessment report and draft TDP will be made available to the affected tribal communities in an appropriate form, manner, and language. In order to disseminate draft TDP, the project will (i) translate the draft plan in local language; (ii) hard copy will be given to the tribal community in the sub project area through tribal area; (iii) a copy will also be made available at the IA’s office and with the community coordinator; and (iv) the plan will be explained in gram sabha with sufficient prior notice. Post finalization of the TDP, the document is also made available to the affected tribal communities in the same manner as the earlier draft documents.</p>	PMU / DPCU/BPIU

5.3 Tribal Inclusion Approach

The project will have exclusive strategic focus for greater inclusion and representation of tribal in scheduled areas and their active association in project interventions. The strategy proposed for inclusion of tribal communities is discussed below.

evidence of agreement between the parties. FPIC does not require unanimity and may be achieved even when individuals or groups within or among affected tribal community explicitly disagree. When the Bank cannot ascertain the FPIC of the affected tribal community, the aspect of the project relevant to those tribal community will not be processed further. In such cases, the Borrower will ensure that the project will not cause adverse impacts on that group of tribal community.

Project Approach and Strategy for Tribal Development

Project Stages	Project Approach and Strategy	Expected Outcome
Preparatory Phase	<ul style="list-style-type: none"> • Discussion with tribal families / farmers of the project area in general and exclusively in scheduled areas on project component and activities; • Identifying key issues in the way of their greater involvement and befitting from the project intervention; • Preparing a priority list of actions, based on the identified issues and interest of tribal farmers / families of the project area. • Preparing cluster specific plan of action for better inclusion of tribal in different activities that are feasible for their greater participation. 	<ul style="list-style-type: none"> • Key intervention areas are identified, and guidelines prepared for improved participation of tribal in general • List of actions finalized for implementation to ensure greater involvement and participation of tribal by activities
Implementation Phase	<ul style="list-style-type: none"> • Implementing priority actions that are finalized during preparatory phase; • Initiatives for convergence with tribal development schemes of Government at the village / block level; • Priority action in inaccessible scheduled areas (project village) for establishment of infrastructures (such as community market places, community toilets, safe playgrounds) that are planned under the project, based on feasibility; • Equal opportunity to dispersed tribal (living in a mixed community) for accessing project benefits, as per the plan under entitlement coverage; • Ensuring greater participation of tribal community in activities / sub-activities taken up under each component / sub-components of the project; • Taking measures, adhering to the scope of the project, to build the capacity of tribal people in maintaining public assets as per the project requirements; • Monitoring of actions taken under the project for inclusion of tribal by project component / sub-components and initiating corrective measures accordingly; • Documenting success and learning from different initiatives undertaken by the project that ensures greater participation of tribal. 	<ul style="list-style-type: none"> • Participation of tribal in different activities implemented under the project; • Project supported infrastructure and services in less accessible scheduled areas / tribal dominated areas; • Inclusion of tribes and their active involvement ensured with better operational and management capabilities;

5.4 Tribal Development Plan (TDP)

On the basis of the Social Assessment and consultation conducted as part of the process, a Tribal Development Plan (TDP) will be prepared covering all project sites which has tribal population. TDP will include the following elements:

- The description of the project objective and activities, in particular on project activities that will be conducted for the site;
- A summary of the Social Assessment including the results of the consultation with the tribal community, and verification of their broad community support for the project;

- A mechanism to ensure that tribal communities can meaningfully participate in the project activities and maximize their benefit from the project.
- TDP should include an institutional mechanism to ensure that project benefits will be shared with the tribal community and that the project activities will not interfere with their way of living and cultural identity. The mechanism should include participation of tribal leaders and representation of tribal administration.
- Mechanisms through which affected tribal communities are able to voice concerns and grievances and have them addressed;
- Mechanisms and benchmarks for monitoring, evaluating, and reporting on the implementation of TDP; and
- The financing plan for TDP implementation.

5.5 Suggested Format for TDP

The suggested format for the TDP is as follows:

- 11) Description of sub projects and implications for the Tribal community
- 12) Gender disaggregated data on number of tribal households
- 13) Social, cultural and economic profile of affected households
- 14) Land tenure information
- 15) Documentation of consultations with the community to ascertain their views about the project design;
- 16) Community development plan based on the results of consultation and assessment
- 17) Modalities to ensure regular and meaningful consultation with the community and participatory approach
- 18) Institutional arrangement and linkage with other national or state level programmes
- 19) Institutional mechanism for monitoring and evaluation of TDP implementation and grievance redress. This chapter should also include institutional mechanism to ensure that project benefits will be shared with the tribal community and that the project activities will not interfere with their way of living and cultural identity. The mechanism should include participation of tribal leaders and representation of tribal administration
- 20) Implementation Schedule and cost estimate for implementation

5.6 Approval and Disclosure

Once the draft TDP(s) and the associated SA Report(s) are drafted, they will be submitted to PMU for review and approval of the Social Expert of the PMU. The PMU will translate them into relevant local languages, make them available on its website as well as in locations accessible to tribal communities, and consult them with tribal communities for comments. These TDPs will be disclosed on DPCU's and BPIU's webpage, finalize them considering the comment received, and submit them to the Bank for review and clearance. The Bank will disclose the TDP(s) through the Info shop.

5.7 Monitoring and Evaluation

Throughout the implementation of the project, the Social Experts of PMU and DPCU will monitor the project compliance with ESS 7. The experts will visit at least on a monthly basis since the planning until two months after the completion of civil works the project sites and meet the tribal communities and their leaders. Upon the completion of the Sub-Project and implementation of TDP, the expert will carry out a TDP completion assessment to confirm that all measures under this TDP have been fully implemented. At the end of the Project an impact evaluation will be carried out by an independent

agency/ consultant to review and assess that implementation is in compliance with agreed and approved TDP.

Monitoring group will be created in each tribal inhabited project area which will ensure that all actions would be undertaken in line with this TDF and, in case of irregularities, it will be reported to the SPMU. The participatory social audit will be conducted facilitated by Social Expert, whereby community will be encouraged and facilitated to report outstanding issues and air grievances. The meeting will be attended by other PMU members and village authorities. The minutes of the meeting will be prepared, and measures will be taken to address the recorded issues in the subsequent annual cycle.

All implementing agencies will have an TDF focal point that will regularly supervise and monitor TPP implementation. These focal points will report to Project Director on TDF related matters and request the support of the Social Expert if needed. S/he will travel to the sites and spot check if the actions are taken and information provided in conformity with the TDF.

6.0 Grievance Redress Mechanism

The Project will establish a Grievance Redress Mechanism (GRM) with the aim to respond to queries or clarifications or complaints about the project and address complaints/concerns and grievances of the stakeholders. The GRM will focus on corrective actions that can be implemented quickly and at a relatively low cost to resolve identified implementation concerns, GRM will also serve as a channel for early warning, helping to target supervision to where it is most needed and identify systemic issues.

The institutional arrangement for the GRM will be established as following:

- **Block level Grievance Officer:** The Agriculture Extension Officer (AEO) of PIU will be first level of contact for grievances. The AEO with the help of community coordinator; and tribal head of the concerned village, within 15 days of receiving the grievance shall communicate the resolution to the aggrieved person. If the aggrieved person is not satisfied, he or she can escalate the issue to district level.
- **District level Grievance Officer.** The District Project Officer (DPO) will be the nodal Grievance Officer at the District Level responsible for receiving, tracking and resolving grievances from the stakeholders. The DPO will be assisted by Social Specialist of district level PCU and a representative each from district administration and tribal department. If grievance remains unresolved for not to the satisfaction of aggrieved person within 15 days of receiving the grievance, the grievance will be escalated to State level.
- **Project Grievance Officer.** The Executive Director of the CHIRAAG will be the ex-officio, senior most official to act as the Grievance Officer for the whole project. The ED will hold quarterly reviews of the functioning of the GRM. The Social Specialist will assist the Executive Director in resolution of grievances. The grievance should be resolved to the satisfaction of the aggrieved person within 15 days of receiving the grievance.
- Status of Grievances received and resolved will be track through the project MIS as well as monthly progress reports from the Districts and Blocks.
- Chhattisgarh Department of Agriculture will be issuing an office order and necessary notifications to establish and operationalize the GRM for the project.

Grievance Channels. Project beneficiaries and stakeholders will be able to submit their grievances, feedback and inquiries to the Project through multiple channels that are summarized below.

- State Government Portal. The existing mechanism of State Government portal for citizen's grievances and enquires will also cover the Project. HPFD receives regular inputs from this portal on grievances that are to be addressed by the HPFD.
- Project specific Portal. Project will maintain a portal with dedicated mechanisms for receiving stakeholder grievances. All grievances, feedback and queries received through the project portal will be collated and compiled by the State Social Expert and included in the progress report. The portal will also provide relevant information on the multiple channels that can be used for submitting grievances to the project.
- Grievance Registers. Grievance Registers will be maintained at District/Block levels to record, track and report on the inflow of stakeholder grievances, enquiries and feedback. The Grievance Registers will help with monitoring and evaluation of the functioning of GRMS.

Grievance Process. All grievances, enquiries and feedback received through the multiple channels will be tracked through a grievance log that would be maintained through the MIS. Grievances will be directed to the competent nodal grievance officer at the state, district, and block levels for resolution, with recommended timelines. The concerned Grievance Officer will be responding to the grievance/query through phone calls, meetings and letters, in order to resolve the issues. If needed site visits will be undertaken to appraise the exact nature of the stakeholder concerns. The Complainant will be made part of the grievance resolution process and kept updated of the resolution process through phone calls and formal letters. Information material on GRM will also inform the stakeholders about grievance escalation hierarchy that would help the complainant to escalate any unresolved issues to higher level officers, as well as the existing state level GRM channels of government portal and grievance committee chaired by the district collectors. The grievance redress process will be a continuous, transparent and participatory process that would be an integral part of the project's accountability and governance agenda.

GRM Monitoring and Reporting. The functioning of the GRM will be monitored by the Social Expert in the SPMU and the PD. Status and function of the GRM will be documented and shared by the Social Expert in the SPMU through periodic reports and review meetings. GRMs will also be tracked through the project MIS. Regular GRM Review Meetings will held chaired by the PD and convened by the Social Expert of the SPMU. The Social Expert will be responsible for presenting status of all matters/ grievances received during the last quarter/month, and the action taken to resolve them. The GRM mechanism will be notified to the public and stakeholders within the 1st 6 months of project effectiveness. The project website will be posting the status of the GRM status periodically on the website of the project.

Assistance for aggrieved persons belonging to vulnerable groups for accessing legal recourse

If an aggrieved person is not satisfied with the results of grievance redress by the project grievance redress mechanism, such a person can approach the Courts, under the laws of the Country, and the verdicts of the Courts will be final, as per the judicial processes established in India. In general, the legal system is accessible to all such aggrieved persons. However, there might be cases where vulnerable sections face hurdles in accessing the legal recourse system. These hurdles usually include the cost of litigation, knowledge about the legal system, or the lack of awareness about formal legal procedures. To help citizens to access the legal recourse system, each State has an operational mechanism called the Legal Aid Centre, which provides free services including services of lawyers without any cost to the litigants. The social specialist of SPMU will engage with State legal Aid Centre

to provide such services to the aggrieved persons. As part of the partnership, the project will reimburse all additional costs that accrue to the State Legal Aid Centres. This facilitation will be available to the aggrieved person(s) if they fulfil the following two conditions: (1) that such aggrieved person(s) belong to any of the following vulnerable sections of the society - below poverty line families, scheduled castes, scheduled tribes; or is disabled, handicapped, orphaned or destitute person; women headed households; and (2) such a person or persons those who have exhausted the provisions of GRM.

Grievance Redress Service of The World Bank. In addition to seeking to resolve their grievances through the GRM established at the government level, “communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project such as this operation may also submit complaints to the Grievance Redress Service (GRS) established by the World Bank. The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may also submit their complaint to the WB’s independent Inspection Panel, after having brought the complaint to the World Bank’s attention through its GRS. Information on how to submit complaints to the World Bank’s Grievance Redress Service is available at <http://www.worldbank.org/GRS>. Information on how to submit complaints to the World Bank Inspection Panel is available at www.inspectionpanel.org.

7.0 Capacity Building Plan

For the successful implementation of the TDF, the capacity building program for the officials of CHIRAAG SPMU and other line departments at state, district and block level shall be as follows:

- Orientation program will be organized at the State level for all relevant stakeholders at state level involved in the implementation, supervision and monitoring of the TDF. The stakeholders include TDF focal point of implementing agencies; concerned staff of SPMU; and nodal person from tribal administration. The orientation programme shall be organised, one prior to start of the project and then during the mid-term review.
- Next level of orientation on Implementation, Monitoring & Supervision of the TDF shall be arranged at District level inviting key district level officials who will be involved in TDF implementation, Monitoring & Supervision work. This will include social specialist of DPCU and district level officials of tribal administration. The orientation programme shall be organised, one prior to start of the project and then during the mid-term review.
- The next level of training should be arranged for lines departments members at block level. This shall be organized once in a year to acquaint all experts associated with the implementation, supervision and monitoring of the TDF and its associated management plans. The target audiences will be Community Coordinators; social coordinator at block level and tribal administration officials at block level.

Community level training workshops on orientation/ sensitization on the TDF will be conducted inviting members of relevant community institution, tribal leaders and other community members. The workshop will be part of preparation of sub projects. The representatives of tribal community will also be trained in social audit.

India

**Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)
Design Report**

Annex: WB letter to DEA confirming co-financing

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

January 22, 2021

Dr. C.S. Mohapatra
Additional Secretary
Department of Economic Affairs
Ministry of Finance
Government of India
North Block
New Delhi – 110001

Dear Dr. Mohapatra:

***India: Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project
(CHIRAAG)
(Loan No. 9190 -IN)
Proposed co-financing arrangement with IFAD***

This is in reference to the Department of Economic Affairs' letter dated January 12, 2021 and the subsequent discussion during the Tripartite Portfolio Review Meeting held on January 20, 2021 regarding the proposed co-financing from the International Fund for Agricultural Development (IFAD) for the CHIRAAG Project, specifically for financing an additional eleven blocks from Northern Chhattisgarh.

The World Bank team is working closely with IFAD and the State Government to accommodate the co-financing, so that the IFAD loan is administered and supervised by the Bank. IFAD will need to first complete its loan negotiations with DEA and secure internal approvals. As requested, an estimated timeline is proposed below for your kind information:

- Signing of CHIRAAG Bank loan (\$100m): January 30, 2021 (dependent upon the award of consultancy contracts by State Government);
- Negotiations of the IFAD loan: March 19, 2021 (as indicated by IFAD);
- IFAD executive board approval of the IFAD financing of CHIRAAG (\$67m to finance additional 11 blocks from Northern Chhattisgarh): April 19, 2021 (as indicated by IFAD);
- Loan signing of IFAD loan: April 30, 2021 (as indicated by IFAD);
- Amendment to Bank Financing Agreement: May 30, 2021.

Please note that to take this forward, it will be important to get the CHIRAAG loan signed and made effective as soon as possible. Please do not hesitate to contact Mr. Raj Ganguly, Task Team Leader for the project (email: rganguly@worldbank.org), if you need further information or clarification.

With regards,

Yours sincerely,



Junaid Kamal Ahmad
Country Director, India

cc:

Mr. Rajesh Khullar, Executive Director, World Bank

Mr. Ritesh Kumar Singh, Senior Advisor (India), World Bank

Government of India

Mr. Hanish Chhabra, Director, Department of Economic Affairs, Ministry of Finance

Government of Chhattisgarh

Dr. Geetha M., Agriculture Production Commissioner, Department of Agriculture & Biotechnology and Farmer Welfare

Mr. Bhoskar Vilas Sandipan, Project Director, Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project

India

Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG) Design Report

Annex: Revised cost tables of CHIRAAG as on 3 Feb 2021

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

REVISED COST TABLE
OF
CHHATTISGARH INCLUSIVE RURAL AND
ACCELERATED AGRICULTURAL GROWTH
PROJECT (CHIRAAG)

Results Framework

COUNTRY: India

Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project

Project Development Objectives(s)

The PDO of the proposed project is “to improve income opportunities and the availability of nutritious foods in the targeted households of the tribal dominated areas in Chhattisgarh.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Outreach								
Persons receiving services promoted or supported by the project (Number)			WB: 4,020 IFAD: 2,680 Total: 6,700	WB: 31,920 IFAD: 21,280 Total: 53,200	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 159,600 IFAD: 106,400 Total: 266,000	WB: 199,200 IFAD: 132,800 Total: 332,000	WB: 240,000 IFAD: 160,000 Total: 400,000
Of which women (Number)			WB: 201 IFAD: 134 Total: 334	WB: 4,788 IFAD: 3,200 Total: 7,988	WB: 34,860 IFAD: 23,240 Total: 58,100	WB: 63,840 IFAD: 42,560 Total: 106,400	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 120,000 IFAD: 80,000 Total: 200,000
Of which, SCs and STs (Number)			WB: 900 IFAD: 1,880 Total: 2780	WB: 9,600 IFAD: 14,890 Total: 16,000	WB: 37,500 IFAD: 46,480 Total: 62,500	WB: 72,000 IFAD: 74,480 Total: 120,000	WB: 105,000 IFAD: 92,960 Total: 175,000	WB: 126,000 IFAD: 112,000 Total: 210,000
Of which, youth (15-24 years) (Percentage)			Total: 10%	Total: 10%	Total: 20%	Total: 20%	Total: 20%	Total: 20%
Estimated corresponding total number of households members (Number)			WB: 18,090 IFAD: 11,524 Total: 29,614	WB: 143,640 IFAD: 91,504 Total: 235,144	WB: 448,200 IFAD: 285,520 Total: 733,720	WB: 718,200 IFAD: 457,520 Total: 1,175,720	WB: 896,400 IFAD: 571,040 Total: 1,467,440	WB: 1,808,000 IFAD: 688,000 Total: 2,496,000
Of which, SCs and STs (Number)			WB: 4,050 IFAD: 8,084 Total: 12,134	WB: 43,200 IFAD: 64,027 Total: 107,227	WB: 168,750 IFAD: 199,864 Total: 368,614	WB: 324,000 IFAD: 320,264 Total: 644,264	WB: 472,500 IFAD: 399,728 Total: 872,228	WB: 567,000 IFAD: 481,600 Total: 1,048,600

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Corresponding number of households reached (Number)			WB: 4,020 IFAD: 2,680 Total: 6,700	WB: 31,920 IFAD: 21,280 Total: 53,200	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 159,600 IFAD: 106,400 Total: 266,000	WB: 199,200 IFAD: 132,800 Total: 332,000	WB: 240,000 IFAD: 160,000 Total: 400,000
Of which, SCs and STs (Number)			WB: 900 IFAD: 1,880 Total:	WB: 9,600 IFAD: 14,890 Total: 16,000	WB: 37,500 IFAD: 46,480 Total: 62,500	WB: 72,000 IFAD: 74,480 Total: 120,000	WB: 105,000 IFAD: 92,960 Total: 175,000	WB: 126,000 IFAD: 112,000 Total: 210,000
To intensify and diversify sources of income, and to improve the availability of nutritious foods								
Beneficiary households with intensified and diversified sources of income (Number)		0.00	0.00	WB: 3,600 IFAD: 2,400 Total: 6,000	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 48,000 IFAD: 32,000 Total: 80,000	WB: 75,000 IFAD: 50,000 Total: 125,000	WB: 108,000 IFAD: 72,000 Total: 180,000
Of which, among SCs and STs (Percentage)		0.00	40	50	60	60	60	60
Beneficiary households with increased number of food groups available at the household (Number)		0.00	0.00	WB: 3,600 IFAD: 2,400 Total: 6,000	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 48,000 IFAD: 32,000 Total: 80,000	WB: 75,000 IFAD: 50,000 Total: 125,000	WB: 108,000 IFAD: 72,000 Total: 180,000
Of which, women reporting improved quality of their diets (Number) (equivalent to CI 1.2.8.)				WB: 3,600 IFAD: 2,400 Total: 6,000	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 48,000 IFAD: 32,000 Total: 80,000	WB: 75,000 IFAD: 50,000 Total: 125,000	WB: 108,000 IFAD: 72,000 Total: 180,000
Of which, among SCs and STs (Percentage)		0.00	40	50	60	60	60	60
Farmers reached with agricultural assets or services (CRI, Number)		0.00	WB: 4,020 IFAD: 2,680 Total: 6,700	WB: 31,920 IFAD: 21,280 Total: 53,200	WB: 99,600 IFAD: 66,400 Total: 166,000	WB: 159,600 IFAD: 106,400 Total: 266,000	WB: 199,200 IFAD: 132,800 Total: 332,000	WB: 240,000 IFAD: 160,000 Total: 400,000
Farmers reached with agricultural assets or		0.00	WB: 201	WB: 4,788	WB: 34,860	WB: 63,840	WB: 99,600	WB: 120,000

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
services - Female (CRI, Number)			IFAD: 134 Total: 334	IFAD: 3,200 Total: 7,988	IFAD: 23,240 Total: 58,100	IFAD: 42,560 Total: 106,400	IFAD: 66,400 Total: 166,000	IFAD: 80,000 Total: 200,000
Of which, SCs and STs (Number)		0	WB: 900 IFAD: 1,900 Total: 2,800	WB: 9,600 IFAD: 15,000 Total: 24,600	WB: 37,500 IFAD: 46,500 Total: 84,000	WB: 72,000 IFAD: 74,500 Total: 146,500	WB: 105,000 IFAD: 93,000 Total: 198,000	WB: 126,000 IFAD: 112,000 Total: 238,000
Of which, youth (15-24 years) (Percentage)			Total: 10%	Total: 10%	Total: 20%	Total: 20%	Total: 20%	Total: 20%

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Component 1: Community empowerment and institutional strengthening								
Village development plans (Number)		0.00	WB: 150 IFAD: 100 Total: 250	WB: 500 IFAD: 350 Total: 850	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500
Beneficiary livelihood groups which have at least 50 percent membership from SC/ST households (Number)		0.00	WB: 66 IFAD: 40 Total: 100	WB: 150 IFAD: 105 Total: 255	WB: 500 IFAD: 250 Total: 750	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000.00 IFAD: 500 Total: 1,500	WB: 1,000.00 IFAD: 500 Total: 1,500
Beneficiary livelihood groups which have at least 25 percent women members (Number)		0.00	WB: 33 IFAD: 20 Total: 53	WB: 90 IFAD: 65 Total: 155	WB: 350 IFAD: 175 Total: 525	WB: 800 IFAD: 400 Total: 1,200	WB: 900 IFAD: 450 Total: 1,350	WB: 1,000 IFAD: 500 Total: 1,500

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
IFS operationalized which include nutrition related SBCC sessions (Percentage)		0.00	0.00	Total: 20	Total: 30	Total: 50	Total: 75	Total: 85
Component 2: Diversified, Resilient and Nutrition Supportive Food and Agriculture Systems								
Beneficiary households supported with sustainable water management and soil improvement practices (Number)		0.00	WB: 300 IFAD:200 Total: 500	WB: 10,275 IFAD: 6,850 Total: 17,125	WB: 21,375 IFAD: 14,250 Total: 35,625	WB: 22,050 IFAD: 14,700 Total: 36,750	WB: 22,050 IFAD: 14,700 Total: 36,750	WB: 22,050 IFAD: 14,700 Total: 36,750
Increase in land area under production of more nutritious crops among beneficiary households (Percentage)		0.00	Total: 10	Total: 10	Total: 20	Total: 20	Total: 30	Total: 30
Beneficiary individuals which have adopted resilient and improved technologies and practices (Number) (equivalent to CI 3.2.2 Number of persons reporting adoption of environmentally sustainable and climate resilient technologies and practices)		0.00	0.00	WB: 6,750 IFAD: 4,500 Total: 11,250	WB: 36,900 IFAD: 24,600 Total: 61,500	WB: 57,600 IFAD: 38,400 Total: 96,000	WB: 81,000 IFAD: 54,000 Total: 135,000	WB: 90,000 IFAD: 60,000 Total: 150,000
Of which, women beneficiaries (Number)		0.00	0.00	WB: 1,013 IFAD: 675 Total: 1,688	WB: 7,380 IFAD: 4,920 Total: 12,300	WB: 14,400 IFAD: 9,600 Total: 24,000	WB: 24,300 IFAD: 16,200 Total: 40,500	WB: 27,000 IFAD: 18,000 Total: 45,000
Number of groups supported to sustainably manage natural resources and climate resilient risks (CI 3.1.1 added)		0.00	WB: 150 IFAD: 100 Total: 250	WB: 500 IFAD: 350 Total: 850	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500	WB: 1,000 IFAD: 500 Total: 1,500

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Beneficiary households adopting at least two activities of integrated farming systems (Percentage)		0.00	0.00	Total: 10.00	Total: 15.00	Total: 20.00	Total: 25.00	Total: 30.00
Beneficiary individuals with improved Badis- backyard garden production (Number) (equivalent CI. 1.1.8 Number of persons provided targeted support to improve nutrition)		0.00	WB: 2,700 IFAD: 1,800 Total: 4,500	WB: 22,500 IFAD: 15,000 Total: 37,500	WB: 73,800 IFAD: 49,200 Total: 123,000	WB: 144,000 IFAD: 96,000 Total: 240,000	WB: 144,000 IFAD: 96,000 Total: 240,000	WB: 144,000 IFAD: 96,000 Total: 240,000
Of which, women beneficiaries (Number)		0.00	WB: 810 IFAD: 540 Total: 1,350	WB: 9,000 IFAD: 6,000 Total: 15,000	WB: 36,900 IFAD: 24,600 Total: 61,500	WB: 86,400 IFAD: 57,600 Total: 144,000	WB: 86,400 IFAD: 57,600 Total: 144,000	WB: 86,400 IFAD: 80,000 Total: 146,000
Of which, youth (15-24 years) (Percentage)			Total: 10%	Total: 10%	Total: 20%	Total: 20%	Total: 20%	Total: 20%
Component 3: Value addition and access to markets								
Common Hiring Centers supported with value addition and processing infrastructure (Number)		0.00	WB: 53 IFAD: 37 Total: 90	WB: 175 IFAD: 125 Total: 300	WB: 350 IFAD: 235 Total: 585	WB: 350 IFAD: 235 Total: 585	WB: 350 IFAD: 235 Total: 585	WB: 350 IFAD: 235 Total: 585
Farmer Producer Organization established, with business plans, and financing (Number) (equivalent to CI 2.1.3 Number of rural producers' organizations supported)		0.00	WB: 1 IFAD: 1 Total: 2	WB: 6 IFAD: 4 Total: 10	WB: 17 IFAD: 13 Total: 30	WB: 25 IFAD: 17 Total: 42	WB: 28 IFAD: 22 Total: 50	WB: 28 IFAD: 22 Total: 50
Farmer Producer Organizations directly engaged in aggregation, grading, and/or primary		0.00	0.00	0.00	WB: 6 IFAD: 4 Total: 10	WB: 11 IFAD: 9 Total: 20	WB: 14 IFAD: 11 Total: 25	WB: 14 IFAD: 11 Total: 25

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
processing (Number) (equivalent to CI 2.2.5 Number of rural producers' organizations reporting an increase in sales)								
Market linkage partnerships established (Number)		0.00	WB: 1 IFAD: 1 Total: 2	WB: 4 IFAD: 4 Total: 8	WB: 4 IFAD: 4 Total: 8	WB: 5 IFAD: 5 Total: 10	WB: 10 IFAD: 10 Total: 20	WB: 10 IFAD: 10 Total: 20
Component 4: Project Monitoring And Management, Knowledge Management And State Capacity								
Partnerships with knowledge organizations (Number)		0.00	Total: 1	Total: 2	Total: 3	Total: 3	Total: 3	Total: 3
Project related grievances registered and resolved (Percentage)		0.00	100	100	100	100	100	100
Decision Support System for Agriculture Department established (Yes/No)		No	No	Yes	Yes	Yes	Yes	Yes
Policy note developed on promoting and financing Farmer Producer Organizations (Yes/No) (equivalent to CI Policy – Number of new policy proposed to policy makers for approval)		No	No	No	Yes	Yes Number: 1	Yes	Yes
Number of policy relevant knowledge products completed (CI Policy)					1	1	1	1

Project Costables

COUNTRY: India

Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project

Table 1. Project Components by Financiers

Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project Components by Financiers		(INR Million)										(US\$ Million)											
		IBRD		IFAD		The Government		Total		Local (Excl. Duties & Taxes)		IBRD		IFAD		The Government		Total		For. Exch.		Local (excl. Duties & Taxes)	
		Amount	%	Amount	%	Amount	%	Amount	%	For. Exch.	Taxes	Amount	%	Amount	%	Amount	%	Amount	%	Exch.	Taxes	Taxes	
A. Community empowerment and Institutional Strengthening																							
1. Participatory village planning and community institution building		760.41	42.1%	395.23	21.9%	650.05	36.0%	1 805.69	10.6%	-	1 805.69	-	10.71	42.1%	5.57	21.9%	9.16	36.0%	25.43	10.6%	-	25.43	-
2. Household food availability and nutrition practices		164.54	45.0%	91.55	25.0%	109.75	30.0%	365.83	2.2%	-	365.83	-	2.32	45.0%	1.29	25.0%	1.55	30.0%	5.15	2.2%	-	5.15	-
Subtotal		924.95	42.6%	486.77	22.4%	759.80	35.0%	2 171.52	12.8%	-	2 171.52	-	13.03	42.6%	6.86	22.4%	10.70	35.0%	30.58	12.8%	-	30.58	-
B. Integrated food and nutrition supportive agricultural systems																							
1. Community based natural resource management		1 716.78	34.8%	1 276.82	25.9%	1 943.78	39.4%	4 937.39	29.0%	578.52	4 358.87	-	24.18	34.8%	17.98	25.9%	27.38	39.4%	69.54	29.0%	8.15	61.39	-
2. Integrated food and nutrition supportive agriculture		1 649.53	36.7%	1 493.82	33.3%	1 347.15	30.0%	4 490.50	26.4%	921.24	3 569.26	-	23.23	36.7%	21.04	33.3%	18.97	30.0%	63.25	26.4%	12.98	50.27	-
Subtotal		3 366.32	35.7%	2 770.64	29.4%	3 290.94	34.9%	9 427.89	55.4%	1 499.75	7 928.13	-	47.41	35.7%	39.02	29.4%	46.35	34.9%	132.79	55.4%	21.12	111.66	-
C. Value addition and marketing of agriculture, allied and agro-forestry produce																							
1. Value addition and accessing profitable		1 013.29	53.3%	317.96	16.7%	570.53	30.0%	1 901.78	11.2%	107.65	1 794.13	-	14.27	53.3%	4.48	16.7%	8.04	30.0%	26.79	11.2%	1.52	25.27	-
2. Value addition for Nutrition		89.14	38.6%	72.34	31.4%	69.21	30.0%	230.68	1.4%	-	230.68	-	1.26	38.6%	1.02	31.4%	0.97	30.0%	3.25	1.4%	-	3.25	-
Subtotal		1 102.42	51.7%	390.30	18.3%	639.74	30.0%	2 132.47	12.5%	107.65	2 024.82	-	15.53	51.7%	5.50	18.3%	9.01	30.0%	30.03	12.5%	1.52	28.52	-
D. COVID-19 Response																							
1. COVID-19 Response		1 064.27	59.7%	717.93	40.3%	-	-	1 782.20	10.5%	-	1 782.20	-	14.99	59.7%	10.11	40.3%	-	-	25.10	10.5%	-	25.10	-
E. Project management, monitoring and evaluation and knowledge management																							
1. Project management, monitoring, evaluation and learning		626.84	43.6%	379.21	26.4%	431.16	30.0%	1 437.21	8.4%	26.61	1 410.60	-	8.83	43.6%	5.34	26.4%	6.07	30.0%	20.24	8.4%	0.37	19.87	-
2. Knowledge management and strengthening state capacity		24.19	41.1%	17.01	28.9%	17.66	30.0%	58.86	0.3%	-	58.86	-	0.34	41.1%	0.24	28.9%	0.25	30.0%	0.83	0.3%	-	0.83	-
Subtotal		651.03	43.5%	396.22	26.5%	448.82	30.0%	1 496.07	8.8%	26.61	1 469.46	-	9.17	43.5%	5.58	26.5%	6.32	30.0%	21.07	8.8%	0.37	20.70	-
F. Contingent Emergency Response Component (CERC)																							
1. Contingent Emergency Response Component (CERC)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PROJECT COSTS		7 108.99	41.8%	4 761.87	28.0%	5 139.29	30.2%	17 010.14	100.0%	1 634.02	15 376.13	-	100.13	41.8%	67.07	28.0%	72.38	30.2%	239.58	100.0%	23.01	216.57	-

Table 2. Project Cost by Expenditure Category and Financier

Chhattisgarh Inclusive Rural and Accelerated A																
Expenditure Accounts by Financiers	(INR Million)								(US\$ Million)							
	IBRD		IFAD		The Government		Total		IBRD		IFAD		The Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Investment Costs																
A. Civil Works	2 087.57	39.9%	1 574.74	30.1%	1 563.82	29.9%	5 226.14	31.2%	29.40	39.9%	22.18	30.1%	22.03	29.9%	73.61	30.7%
B. Equipment	645.58	39.5%	469.31	28.7%	519.13	31.8%	1 634.02	9.8%	9.09	39.5%	6.61	28.7%	7.31	31.8%	23.01	9.6%
C. Agriculture Inputs	4.33	43.7%	2.60	26.3%	2.97	30.0%	9.90	0.1%	0.06	43.7%	0.04	26.3%	0.04	30.0%	0.14	0.1%
D. Grant	1 839.27	44.9%	1 128.09	27.5%	1 132.94	27.6%	4 100.30	24.5%	25.91	44.9%	15.89	27.5%	15.96	27.6%	57.75	24.1%
E Training																
1. Local Training	390.48	38.2%	309.15	30.2%	322.91	31.6%	1 022.54	6.1%	5.50	38.2%	4.35	30.2%	4.55	31.6%	14.40	6.0%
2. Foreign Training	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	4 967.24	56.6%	3 483.90	39.7%	324.30	3.7%	8 775.44	52.4%	69.96	41.4%	49.07	29.0%	49.88	29.5%	168.91	70.5%
F. Technical Assistance																
1. Local Technical Assistance	1 077.87	42.9%	642.59	25.6%	793.34	31.6%	2 513.80	15.0%	15.18	42.9%	9.05	25.6%	11.17	31.6%	35.41	14.8%
2. Foreign Technical Assistance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	1 077.87	45.4%	642.59	27.1%	654.97	27.6%	2 375.42	14.2%	15.18	42.9%	9.05	25.6%	11.17	31.6%	35.41	14.8%
G. Operations and Maintenance																
1. Operating Expenses	1 063.88	42.5%	635.38	25.4%	804.18	32.1%	2 503.44	14.9%	14.98	42.5%	8.95	25.4%	11.33	32.1%	35.26	14.7%
Total PROJECT COSTS	7 108.99	42.4%	4 761.87	28.4%	4 882.24	29.1%	16 753.09	100.0%	100.13	41.8%	67.07	28.0%	72.38	30.2%	239.58	100.0%

Table 3. Project Components by Year

Chhattisgarh Inclusive Rural and Accelerated Agriculture Growth Project														
Project Components by Year -- Totals Including Contingencies	Totals Including Contingencies (INR Million)							Totals Including Contingencies (US\$ Million)						
	2020	2021	2022	2023	2024	2025	Total	2020	2021	2022	2023	2024	2025	Total
A. Community empowerment and Institutional Strengthening														
1. Participatory village planning and community institution building	263.53	288.33	330.89	317.51	307.59	297.83	1 805.69	3.71	4.06	4.66	4.47	4.33	4.19	25.43
2. Household food availability and nutrition practices	30.46	54.69	80.43	94.02	68.67	37.56	365.83	0.43	0.77	1.13	1.32	0.97	0.53	5.15
Subtotal	293.99	343.02	411.32	411.53	376.27	335.38	2 171.52	4.14	4.83	5.79	5.80	5.30	4.72	30.58
B. Integrated food and nutrition supportive agricultural systems														
1. Community based natural resource management	106.84	971.38	2 034.21	1 591.39	233.56	-	4 937.39	1.50	13.68	28.65	22.41	3.29	-	69.54
2. Integrated food and nutrition supportive agriculture	194.16	971.07	1 431.70	1 239.34	519.88	134.35	4 490.50	2.73	13.68	20.16	17.46	7.32	1.89	63.25
Subtotal	301.00	1 942.45	3 465.91	2 830.73	753.45	134.35	9 427.89	4.24	27.36	48.82	39.87	10.61	1.89	132.79
C. Value addition and marketing of agriculture, allied and agro-forestry produce														
1. Value addition and accessing profitable	128.10	355.90	492.78	459.99	347.10	117.91	1 901.78	1.80	5.01	6.94	6.48	4.89	1.66	26.79
2. Value addition for Nutrition	5.05	41.97	129.43	54.23	-	-	230.68	0.07	0.59	1.82	0.76	-	-	3.25
Subtotal	133.15	397.88	622.21	514.21	347.10	117.91	2 132.47	1.88	5.60	8.76	7.24	4.89	1.66	30.03
D. COVID-19 Response														
1. COVID-19 Response	1 156.62	625.58	-	-	-	-	1 782.20	16.29	8.81	-	-	-	-	25.10
Subtotal	1 156.62	625.58	-	-	-	-	1 782.20	16.29	8.81	-	-	-	-	25.10
E. Project management, monitoring and evaluation and knowledge management														
1. Project management, monitoring, evaluation and learning	265.33	248.44	255.53	220.32	214.50	233.10	1 437.21	3.74	3.50	3.60	3.10	3.02	3.28	20.24
2. Knowledge management and strengthening state capacity	2.03	17.54	7.18	18.08	6.99	7.03	58.86	0.03	0.25	0.10	0.25	0.10	0.10	0.83
Subtotal	267.36	265.98	262.71	238.40	221.49	240.13	1 496.07	3.77	3.75	3.70	3.36	3.12	3.38	21.07
F. Contingent Emergency Response Component (CERC)														
1. Contingent Emergency Response Component (CERC)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PROJECT COSTS	2 152.12	3 574.91	4 762.15	3 994.87	1 698.31	827.77	17 010.14	30.31	50.35	67.07	56.27	23.92	11.66	239.58

India

**Chhattisgarh Inclusive Rural & Accelerated Agriculture Growth Project (CHIRAAG)
Design Report**

Annex: Revised Summary Costs Of As Of 19 Feb For Uploading In Orms

Document Date: 26/02/2021
Project No. 2000003444
Report No. 5630-IN

Asia and the Pacific Division
Programme Management Department

Revised Summary Costs of CHIRAAG based on co-financing of the full project

Dated 19th February 2021

Cost revision prepared by World Bank

Table 1

Project costs by component and subcomponent and financier

(Millions of United States dollars)

	IBRD		IFAD		The Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%
A. Community empowerment and institutional strengthening								
1. Participatory village planning and community institution building	10.86	42.0	7.24	28.0	7.76	30.0	25.86	10.8
2. Household food availability and nutrition practices	2.00	42.0	1.33	28.0	1.43	30.0	4.77	2.0
Subtotal	12.86	42.0	8.57	28.0	9.19	30.0	30.62	12.8
B. Diversified, resilient and nutrition supportive food and agricultural systems								
1. Community based natural resource management	27.38	36.0	18.26	24.0	30.43	40.0	76.06	31.9
2. Integrated food and nutrition supportive agriculture	25.22	42.0	16.82	28.0	18.02	30.0	60.06	25.2
Subtotal	52.61	38.6	35.07	25.8	48.44	35.6	136.12	57.0
C. Value addition and market access								
1. Value addition and accessing profitable markets	7.49	40.9	5.32	29.1	5.49	30.0	18.30	7.7
2. Value addition for Nutrition	0.89	42.0	0.59	28.0	0.63	30.0	2.11	0.9
Subtotal	8.37	41.0	5.91	29.0	6.12	30.0	20.41	8.6
D. COVID-19 Response								
1. COVID-19 Response	15.05	60.0	10.03	40.0	-0.00	-	25.08	10.5
E. Project management, monitoring and evaluation and knowledge management								
1. Project management, monitoring, evaluation and learning	10.66	42.0	7.11	28.0	7.61	30.0	25.38	10.6
2. Knowledge management and strengthening state capacity	0.45	42.0	0.30	28.0	0.32	30.0	1.08	0.5
Subtotal	11.11	42.0	7.41	28.0	7.94	30.0	26.46	11.1
F. Contingent Emergency Response Component (CERC)								
	-	-	-	-	-	-	-	-
Total PROJECT COSTS	100.00	41.9	67.00	28.1	71.69	30.0	238.69	100.0

Table 2
Project costs by expenditure category and financier
(Millions of United States dollars)

	IBRD		IFAD		The Government		Total	
	Amount	%	Amount	%	Amount	%	Amount	%
I. Investment Costs								
A. Civil Works	10.86	36.0	7.24	24.0	12.06	40.0	30.16	12.6
B. Equipment	12.85	36.7	8.57	24.4	13.65	38.9	35.07	14.7
C. Services	7.87	40.6	5.58	28.8	5.94	30.6	19.39	8.1
D. Agriculture Inputs	5.38	42.0	3.59	28.0	3.85	30.0	12.82	5.4
E. Grant	18.05	41.5	12.03	27.7	13.43	30.9	43.51	18.2
F. COVID-19 Response	15.05	60.0	10.03	40.0	-0.00	-	25.08	10.5
G. Training								
1. Local Training	4.79	42.0	3.19	28.0	3.42	30.0	11.40	4.8
2. Foreign Training	-	-	-	-	-	-	-	-
Subtotal	4.79	42.0	3.19	28.0	3.42	30.0	11.40	4.8
H. Technical Assistance								
1. Local Technical Assistance	1.52	42.0	1.01	28.0	1.08	30.0	3.62	1.5
2. Foreign Technical Assistance	-	-	-	-	-	-	-	-
Subtotal	1.52	42.0	1.01	28.0	1.08	30.0	3.62	1.5
I. Operations and Maintenance								
1. Operating Expenses	23.63	41.0	15.75	27.3	18.25	31.7	57.64	24.1
Total PROJECT COSTS	100.00	41.9	67.00	28.1	71.69	30.0	238.69	100.0

Table 3

Project costs by component [and subcomponent] and project year (PY)

(Millions of United States dollars)

	2021	2022	2023	2024	2025	2026	Total
A. Community empowerment and institutional strengthening							
1. Participatory village planning and community institution building	3.78	4.11	4.69	4.51	4.44	4.32	25.86
2. Household food availability and nutrition practices	0.37	0.70	1.05	1.24	0.89	0.52	4.77
Subtotal	4.15	4.81	5.74	5.75	5.33	4.84	30.62
B. Diversified, resilient and nutrition supportive food and agricultural systems							
1. Community based natural resource management	0.84	15.32	31.05	25.91	2.95	-	76.06
2. Integrated food and nutrition supportive agriculture	2.11	13.59	19.96	16.11	7.15	1.13	60.06
Subtotal	2.95	28.90	51.01	42.02	10.10	1.13	136.12
C. Value addition and market access							
1. Value addition and accessing profitable markets	1.05	3.41	4.39	4.74	3.81	0.91	18.30
2. Value addition for Nutrition	0.07	0.42	1.41	0.21	-	-	2.11
Subtotal	1.12	3.83	5.80	4.95	3.81	0.91	20.41
D. COVID-19 Response							
1. COVID-19 Response	15.40	9.68	-	-	-	-	25.08
Subtotal	15.40	9.68	-	-	-	-	25.08
E. Project management, monitoring and evaluation and knowledge management							
1. Project management, monitoring, evaluation and learning	4.81	4.56	4.46	3.78	3.72	4.05	25.38
2. Knowledge management and strengthening state capacity	0.03	0.38	0.09	0.39	0.09	0.09	1.08
Subtotal	4.85	4.94	4.55	4.17	3.81	4.13	26.46
F. Contingent Emergency Response Component (CERC)							
1. Contingent Emergency Response Component (CERC)	-	-	-	-	-	-	-
Subtotal	-						
Total PROJECT COSTS	28.47	52.16	67.10	56.89	23.04	11.02	238.69